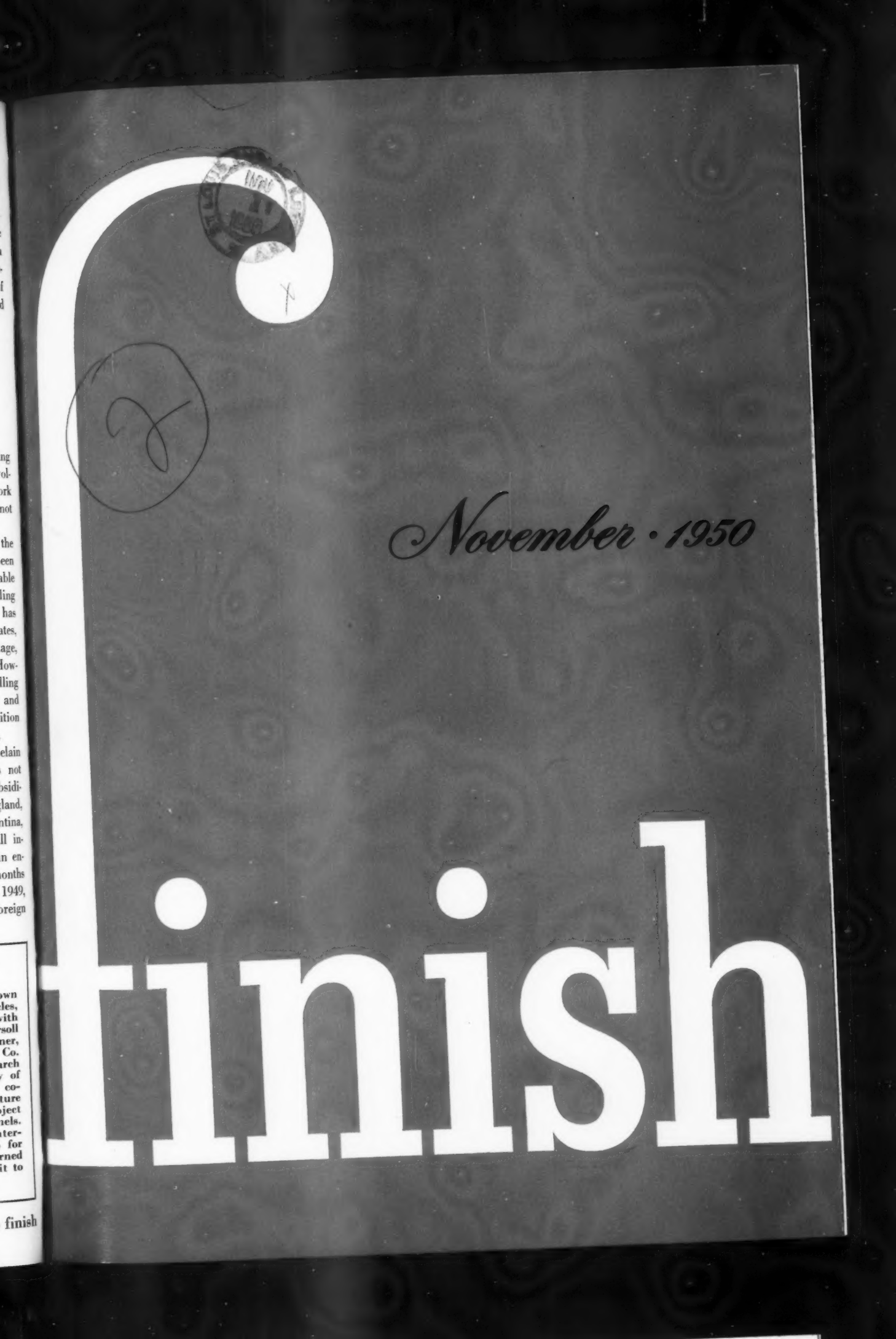
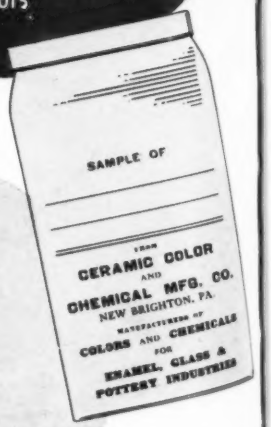

November · 1950
finish

KEEP SALES UP

Use a *NEW* "CERAMIC" COLOR

To Meet Your ENAMEL NEEDS

- Color Oxides
- Screening Colors
- Smelter Color Compounds
- Printing, Graining, Stamping,
- Banding, and Decal Colors



A brave new color may be just the touch your product needs to set it apart from the competition, and give it a distinctive appeal that kindles desire and gets sales.

"Ceramic" knows colors, and knows how to make them. It can produce what you want today, and it can reproduce it ten years from now. The colors you buy from "Ceramic" are pretested under conditions that simulate those in your own plant.

Give us your ideas . . . we'll work with you straight through to satisfaction.

We'll Send a Sample Pretested to Fit Your Production Routine

WENNING CERAMIC COLORS TRADE MARK

CERAMIC COLOR & CHEMICAL MFG. CO.
New Brighton, Pa., U.S.A.

Control of heat and air contamination in porcelain enameling plants

suggestions for controlling heat, humidity, fumes and air-borne dirt in relation to specific plant equipment and operations

by H. D. Carter • THE HARSHAW CHEMICAL COMPANY, CLEVELAND, OHIO

THIS article contains information regarding air-borne contamination, which in an enameling plant may consist of both fumes and dirt, as well as the influence of temperature and atmospheric conditions. In all cases, it can be readily seen that there will be two viewpoints, namely, the effect upon the working personnel and the effect upon the ware being processed. It is quite evident that the improvement of any condition affecting workers will in turn tend to have a beneficial effect upon the resulting product.

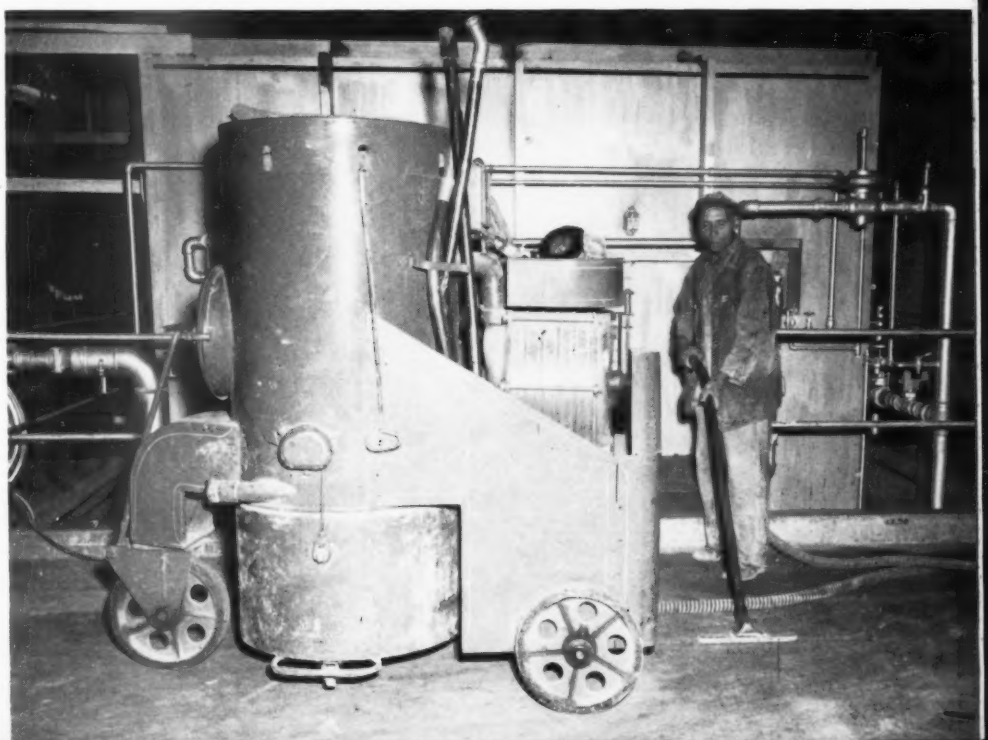
Don't move dirt — remove it

The sources of fumes in most cases are confined to the pickling room and the products of combustion from furnace and drier units. However, the sources of dust are varied and may occur in practically every part of the process. Especially troublesome operations are spraying and brushing. General cleanliness is a factor in combatting the dust and dirt problem. It is believed that in most cases vacuum cleaning has replaced the old broom and sweep method and has proved very beneficial in that it actually removes dirt from the field of operation rather than moving it from one place to another. Also, the use of extension units makes it possible to collect dust that settles on the top of beams and duct work. To permanently improve conditions, it must be remembered that the collection of dust is only part of the problem. It must be disposed of in such a manner that it will not re-enter the process.

Handling pickle room fumes

This part of the process is often disagreeable due to its inherent nature. The possibility of humidity and disagreeable fumes is always present. The manner in which conditions are handled depends upon the type of equipment used in the process. Methods normally used are tank, automatic, and spray.

A number of installations have improved conditions for tank-type pickle rooms. Without exception, the main factor in such improvement is the use of large capacity exhausting units. In such installations, as well as those to be mentioned later, provision



At the Grand Home Appliance plant, Cleveland, industrial vacuum cleaner equipment is used to remove dirt from the enameling department floor. This type of equipment is being used in more and more plants to eliminate surface dust and contamination.

finishfoto

Special air-conditioned storage room for milled enamel at Frigidaire's Moraine City plant. Alloy tubing takes liquid enamel to point of use.

should be made to replace the amount of air exhausted. In tank pickle rooms this was done in two ways that seem interesting. In one case the air entered at slightly higher than floor level, was drawn across the tanks and expelled by exhausting units placed near the ceiling on the opposite wall. Provision was made so that the intake air was drawn in around heat stacks so that the temperature could be raised if desired. A somewhat similar method furnished the replacement air by means of a pipe running the length of the tank. An air screen from closely spaced holes in the pipe carried fumes from the surface of the tank to a hooded exhaust at the rear of the tank.

With automatic continuous pickling equipment, the design is such that all units of the operation are fairly well self-enclosed. This affords an easy means of ventilating and exhausting through suction fans.

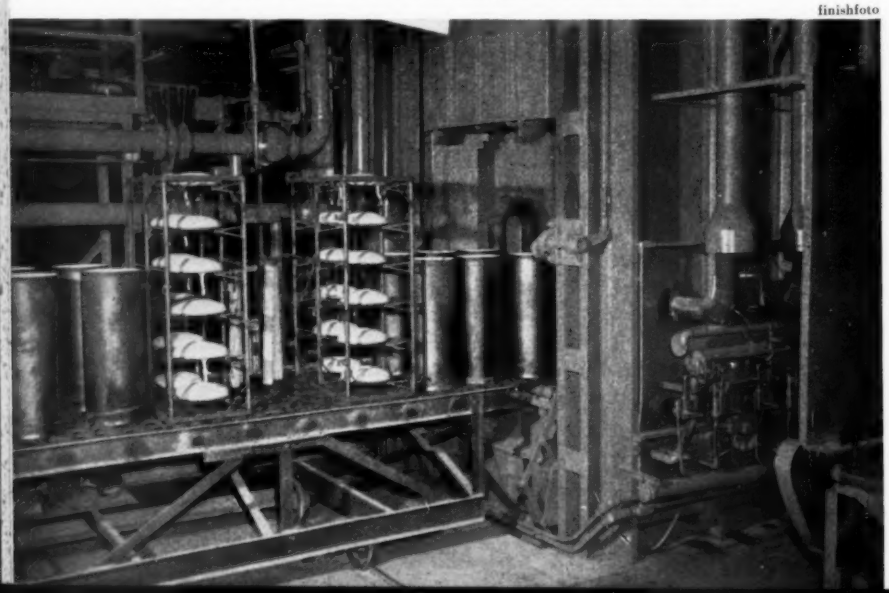
The continuous spray pickle is a method that has entered the enameling field during recent years. The equipment used by this method is completely enclosed. Fumes are washed so that the final exhaust is neutral and unobjectionable. Solutions as well as fumes are enclosed in both spray and automatic installations. This tends to eliminate wet floors and many of the objectionable features associated with the pickling process.

Bright annealing has been used in the kitchenware industry as a means of metal preparation. This method eliminates any possibility of objectionable fumes. The question of additional heat introduced into the working area can be controlled by air screens and hooded exhausts.

During the past few years there has been some interest in the use of sodium acid sulfate as a pickling agent. The use of this material was discussed to some extent at the eleventh annual PEI shop practices forum. Mention was made of the elimination of fumes and a consequent simplification of exhausting requirements and maintenance.

Load of ware entering first of two compartments in one of two controlled atmosphere furnaces in the A. O. Smith plant, Kankakee, Illinois.

finishfoto



Sandblasting

The largest portion of enameling is on sheet steel. However, cast iron is used in numerous products and in such cases cleaning of the castings presents a dust problem when using the usual sandblasting technique. This method has been replaced in some plants by what is called an "airless machine" which tends to eliminate the dust hazard. This apparatus consists of two airless blasting units so mounted that the castings are completely covered by a continuous blast of steel grit. The abrasive is fed by gravity from an overhead hopper to a bladed wheel, from which it is hurled by centrifugal force.

Both milling and slip temperature should be controlled

Elevated temperatures both during the actual milling and subsequent storage of the milled enamel has a deleterious effect upon the workability of the enamel. Trouble arises both from the increase in the concentration of soluble salts in the milled enamel and from the introduction of a non-uniform set condition in the enamel.

Controlling air in spray rooms

In general, complete methods consist of a dust collection unit which is either by wet or dry means, exhausting equipment with provision for expulsion of dust-freed air to the outside or return to working area, filtering units of either dry screen or continuous oil-type to cleanse return or intake air, temperature control of incoming air, and pressurized rooms or

units to further prevent an influx of dirt or dust.

In some processes spraying is done as the ware passes on a conveyor. Personnel doing this are equipped with helmets supplied with conditioned air.

The possibility of electrostatic spraying for use with porcelain enamels has been investigated. Processes which could use this method would simplify the problem of dust collection, for the amount of overspray is greatly reduced.

Driers require control

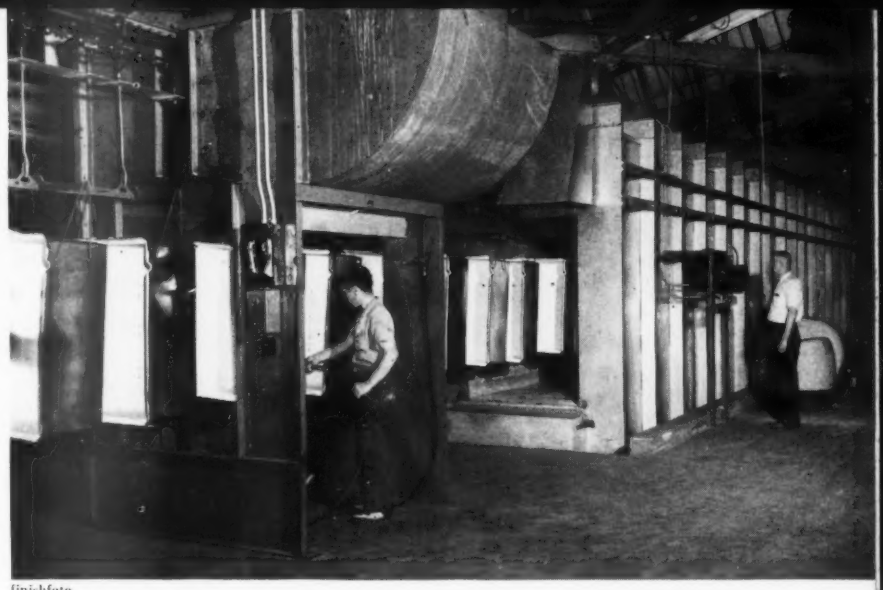
The heat from driers adds to the discomfort of many enameling plants, particularly during the summer months. In most cases, the drying is of such a nature that it is accomplished by the addition of heat by various means accompanied by movement of the surrounding air. This circulation, either by convection or mechanical means, produces a certain amount of spillage. Most installations are equipped with some type of air screen or seal to control the amount of spillage which in turn is exhausted.

Use of infra-red

In some porcelain enameling processes, infra-red drying may be advantageous. There is no need of fans or forced circulation. This would tend to eliminate the transfer of dust and heat spillage.

The production of uniform mottle in gray ware utensils depends to some extent upon the rate of drying. To maintain the optimum rate of drying, controls for both temperature and humidity were necessary. A drier designed to operate in this manner not only processed better ware but also simplified handling problems.

Dried ware in some plants is transported upon racks. The shelves upon which the ware is placed tend to accumulate dirt and dust which may subsequently cause a reject in the fired product. Booths have been designed so that as the car or rack enters, air is automatically turned on, being concentrated at the various shelf levels. A suction exhaust carries the dust to a collection unit, thereby preventing re-circulation in the shop atmosphere. As the rack leaves the



finishfoto

Blow-off booth for removing dust from ware prior to entering furnace at Philco's Philadelphia plant. Suction carries dust to collection units.

cleaning booth the air is automatically turned off.

Temperature and humidity in the brushing area

The condition of the atmosphere in the brushing area is very important. In many plants the dried ware must be handled, and this is a source of trouble from sweat marks if the temperature and humidity are high. The dried enamel removed during the brushing operation must be quickly and efficiently collected to avoid the possibility of spoiling the fired surface.

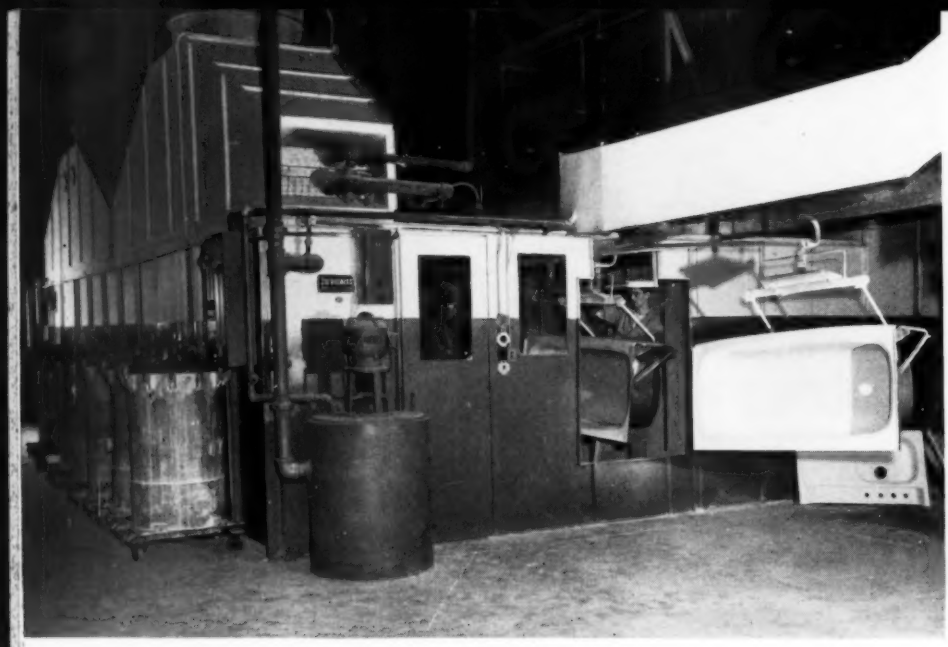
The choice of installation is dependent to some extent upon the type of product. In the manufacture of signs, which require extensive brushing, the use of vacuum brushes has been advantageous. This equipment collects the dust directly over the area where the work is being done before it can diffuse through the atmosphere. Some plant layouts include down-draft brushing tables with or without water wash units, while with another type of production brushing may be done on conveyors in air conditioned pressurized areas.

A blow-off booth has been included in some layouts so that dust may be removed from the ware prior to entering the furnace. Suction is provided to carry the dust to collection units.

Furnaces present temperature and atmospheric problems

Furnace operation is a major fac-

Temperature-controlled air is supplied to this spray booth at Briggs' Detroit plant. Operators' hoods are supplied with fresh filtered air.



This spray room in the plant of Ingersoll Steel, Chicago, is typical of the trend to pressurized spray finishing rooms to control spraying operation and to minimize contamination. All air entering this room passes through a battery of dry filters.

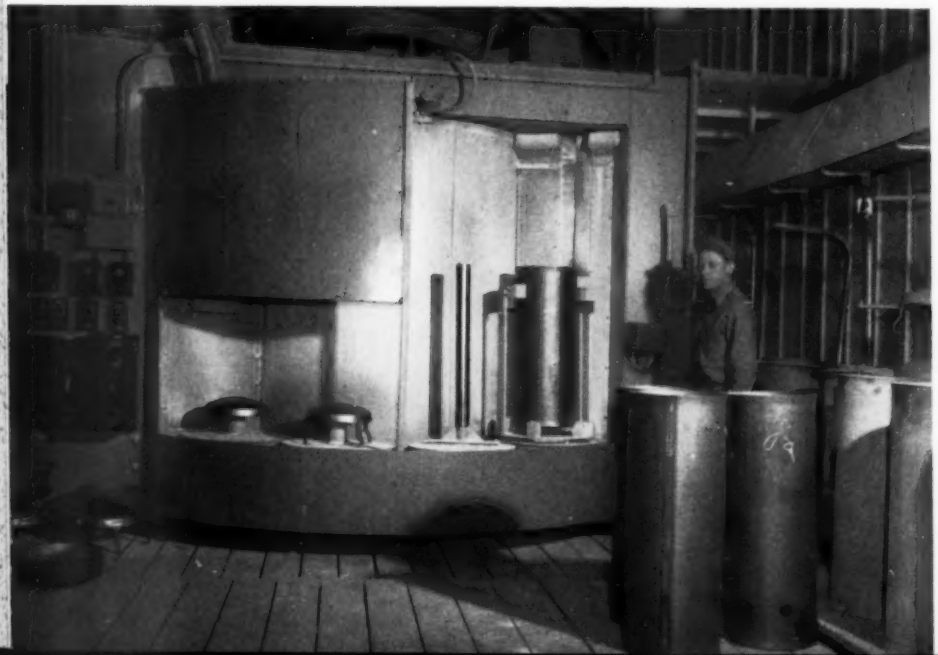
finishfoto

tor both in regard to the effect of the furnace atmosphere upon the ware being processed and to the effect of the furnace temperature upon the over-all working conditions of the areas adjacent to the furnace.

The furnace atmosphere has a pronounced effect upon the finished product. It has been stated that water vapor is by far the most common and the most serious source of trouble. Water vapor may result from charging moist ware into the furnace, from products of combustion, and from water of hydration in the dried enamel. A moisture content of 10% by volume in the firing zone proper has been reported as causing blistering, copperheading, and a generally poor surface texture. Wet process cast iron enamels are more susceptible than sheet steel enamels and lower concentrations of water vapor may cause trouble with them. The reaction of water vapor and the base metal may be a source of trouble-making hydrogen. Precise air conditioning would probably involve expenditures too exorbitant for the benefits derived in most instances. However, the build-up of the moisture content can be held to a minimum by good draft. Most furnaces have been adjusted to operate satisfactorily in this manner.

Although the conditioning of furnace atmosphere is generally considered uneconomical, a specially designed furnace has been developed in which that is advantageously done. This furnace consists of two compartments in tandem separated by approximately two feet of open space. Each compartment is an individual gas-fired radiant tube furnace, with doors at both ends. The first compartment is the oxidizing zone which carries a temperature of about 1050° F., while the second compartment is the glass firing zone in which the atmosphere is purged of all oxygen and the ware fired in a controlled atmosphere at 1600° F. Firing in this inert atmosphere has beneficial effects upon copperheading and fish-scaling, promotes good gloss, and almost entirely eliminates reboiling.

to Page 52 →



With proper equipment, sandblasting can be done without contaminating the plant air. This automatic sandblast unit at A. O. Smith's Kankakee plant includes three sections: (1) for loading and unloading, (2) for blasting, and (3) for blow-off.

finishfoto

Laboratory corrosion testing of chemical-resistant paints

a progress report* on a research program being carried out to obtain a performance picture of chemical-resistant paints, including a comparison with ordinary paints

by R. R. Rogers • HEAD OF CHEMICAL METALLURGY LABORATORY, AND
W. Dingley • CHEMICAL METALLURGY LABORATORY, DIVISION OF MINERAL DRESSING & PROCESS METALLURGY, MINES BRANCH, DEPARTMENT OF MINES AND TECHNICAL SURVEYS OTTAWA, ONTARIO, CANADA

CORROSION has been defined as the destruction of metal by chemical or electrochemical reaction with its environment. It is believed that annual corrosion losses (including the cost of metal lost and of corrosion-prevention measures) amount to many hundreds of million dollars. Losses due to corrosion are particularly heavy in the chemical, metallurgical and mining industries, and in those which operate under marine conditions. Those government departments responsible for maintaining metal structures in satisfactory condition also suffer a great deal from the ravages of corrosion.

Experimental results are presented in this article which indicate that a great many of the corrosion problems of industry and government departments may be solved by the use of chemical-resistant paints. Some indication is given as to the type and extent of the service which can be expected from such paints. Information is also given regarding testing procedures which have been developed and used satisfactorily during the past few years at the Mines Branch (formerly Bureau of Mines).

The present research was undertaken four years ago in order to obtain a general picture of the performance of so-called chemical-resistant paints which now are available on the market. In this work, no attempt was made to explain why one paint is more resistant than another under various corrosive conditions. The primary objective was to obtain data which would be of immediate assistance to those interested in solving corrosion problems. It was hoped also that the experimental procedures used might be of interest to those who are attempting to improve the methods of corrosion testing which are in general use at the present time.

The paints investigated in this research work were chosen because of the special claims regarding their corrosion resistance which had been made by their manufacturers or distributors. For obvious reasons the seven paints mentioned in this paper are referred to only as A, B, C, D, E, F and G.

In all of the experiments, the paints were applied to steel panels in accordance with the instructions issued

Figure 1 — Painted steel samples which had been tested to general breakdown.

Above: (a) Considerable rust and few if any blisters on the surface.
Below: (b) Blisters and little if any rust on the surface.

*Published by permission of the Director-General of Scientific Surveys, Department of Mines and Technical Surveys, Ottawa.

Table I

Laboratory Tests Performed

A. In Atmosphere

Air at high humidity.
Air, water spray, artificial sunlight ("weather").
Air containing spray from 20% salt (sodium chloride) solution.

B. In Liquids

1. Intermittent immersion in:
20% solution of salt,
10% solution of sulphuric acid,
10% solution of caustic soda (sodium hydroxide).

2. Partial immersion in:
20% solution of salt,
10% solution of sulphuric acid,
10% solution of caustic soda.

by the manufacturers. No attempt will be made to discuss the protection of metals other than steel at this time.

It should be pointed out that the tests of a number of the painted panels have not yet been completed and that tests on new types of paint are being commenced from time to time. Accordingly, this article should be regarded as a progress report on a research program which may continue for a considerable number of years.

It would have been possible to obtain a certain amount of information regarding the performance of these paints by applying them to the surfaces of various types of industrial equipment located in different parts of the country. However, such a procedure would have required the expenditure of much time and money. In addition, the results would have been of doubtful accuracy because of the difficulty of obtaining steel surfaces having the same properties, and of continuously maintaining the factors such as concentration of chemicals, temperature and humidity at the desired level during the long period required for the investigation.

Accordingly, a program of testing in the laboratory was decided upon. In such a program steel panels of exactly the same composition could be prepared and painted by carefully controlled procedures, exposed to accurately and continuously maintained corrosive conditions and evaluated carefully and uniformly. The panels could be exposed to conditions which would be typical of some of those to be met with in industry.

Table II

Results of Atmospheric Corrosion Tests on Chemical-Resistant Paints

Paint Type	Length of Time (Days) to Initial or General Breakdown					
	High Humidity		"Weather"		Salt Spray	
	Initial	General	Initial	General	Initial	General
A	91	317	> 145	> 145	15	> 231
B	30	67	15	95	8	44
C	30	> 317	145	> 145	3	15
D	91	317	145	> 145	8	44
E	2	19	257	> 257	1	129
F	33	33	189	> 189	129	129
G	451	451	257	> 257	129	220
Ordinary Paint	Maximum	51				90
	Average	33				43

Table III

Results of Sodium Chloride Immersion Corrosion Tests on Chemical-Resistant Paints

Paint Type	Length of Time (Days) to Initial or General Breakdown			
	Intermittent Immersion		Partial Immersion	
	Initial	General	Initial	General
A	43	1319	12	> 334
B	< 1	43	71	71
C	7	12	4	71
D	7	43	7	71
E	5	13	5	61
F	44	159	154	327
G	13	37	576	> 662

Preparation of test panels

The painted test panels were prepared by the following procedure which was developed at the Mines Branch:

1. Panels 6" x 3", cut from sheets of 22 gage S.A.E. 1010 steel, were blasted thoroughly with No. 36 fused alumina grit at an air pressure of 35 lb. per square inch until both surfaces were free from non-metallic material and entirely uniform in appearance.

2. Immediately following this, the panels were scrubbed with a bristle brush in suitably stabilized trichlorethylene liquid, to remove the blasting dust, and then suspended in the hot vapor of the same liquid to remove the last traces of moisture and prevent more moisture from condensing on the surfaces. They then were stored in a desiccator until everything was in readiness for the application of the paint.

3. The primers and top coats of the seven different paints were carefully applied by spraying or brushing in accordance with the instructions issued by the manufacturers.

4. After the top coat had thoroughly dried, a strip 1/8" wide of the same top coat paint was applied around the edges of each panel by dipping.

The steel panels coated with the seven different paints were exposed in duplicate to the various types of atmospheric and immersion corrosion tests listed in Table I. The conditions existing in each of these are outlined below.

High humidity test

In this test the panels were suspended in a stream of purified air travelling at the rate of 8 linear feet per hour. The air was maintained at a temperature of 49° C. (120° F.) and a relative humidity of 100%. Condensed moisture always was present on the surfaces of the panels.

"Weather" test

In this test the panels were exposed to electric arc radiations which are stated to be similar to those present in June sunlight. For three minutes out of every twenty the panels were sprayed with unheated tap water in order to simulate rainfall. Then they were allowed to dry during the remaining seventeen minutes. Although the temperature of the air in the cabinet was maintained at 35° C. (95° F.), the surfaces of the panels undoubtedly were at a somewhat lower temperature, especially during the time that the spraying took place.

A set of panels coated with paints A, B, C and D were subjected to a variation of this test. They were placed in a "weather" test for 24 hours, and then, after thorough wetting with tap water, were placed in a freezing cabinet at −47° C. (−52° F.) for 24 hours. This cycle was continued throughout the test.

Salt spray test

In this test the panels were exposed to the action of very fine spray from a 20% salt (sodium chloride) solution, the temperature being maintained at 35° C. (91° F.).[1]

Intermittent immersion test

In this test the panels were completely immersed in and removed from the corroding solution, each complete cycle requiring approximately one minute. A temperature of 35° C. (95° F.) and relative humidity of 45% were maintained and the panels remained wet throughout the test.

Table IV

Results of Sulphuric Acid Immersion Corrosion Tests on Chemical-Resistant Paints

Paint Type	Length of Time (Days) to Initial or General Breakdown			
	Intermittent Immersion		Partial Immersion	
	Initial	General	Initial	General
A	43	106	938	1334
B	< 1	2	2	4
C	21	34	20	30
D	34	43	20	30
E	3	3	4	10
F	8	20	22	34
G	19	56	573	> 662

Partial immersion test

This test was similar to the intermittent immersion test except that the panels remained stationary and were about two-thirds immersed in the various solutions in order to determine the nature of the corrosion at the waterline.

It should be noted that the sodium hydroxide solutions which were used in the immersion tests gradually absorbed carbon dioxide from the air and thus gradually became converted into sodium carbonate solutions. Although steel is not greatly affected by either hydroxide or sodium carbonate, the paints deteriorated under the influence of these solutions in a number of cases.

Results of test

A record was kept of the condition of each panel throughout the investigation, particular care being taken to note the time when the first breakdown and the general breakdown of the coatings occurred.

As might be expected, no two paints behaved alike in these tests. In some cases the surfaces were rusted but showed little or no sign of blistering when general breakdown occurred. A typical surface of this kind is shown in Figure 1(a). In other cases there was little or no indication of rusting but the surfaces were blistered at general breakdown. A typical surface of this kind is shown in Figure 1(b). Most of the surfaces were between these two extremes and evidence of a certain amount of both rusting and blistering could be observed in such cases.

The time to initial breakdown and the time to general breakdown in the case of each paint in each of the atmospheric tests are given in Table II. Where the duplicate panels gave different results, the average time was recorded in the table.

During the past few years a considerable number of ordinary paints for metals have been tested under high humidity and salt spray at the Mines Branch.[2] For purposes of comparison, the average and maximum values of time to general breakdown which were obtained in those tests are included in Table II.

The time to initial breakdown and the time to general breakdown in the

Table V

Results of Sodium Hydroxide Immersion Corrosion Tests on Chemical-Resistant Paints

Paint Type	Length of Time (Days) to Initial or General Breakdown			
	Intermittent Immersion		Partial Immersion	
	Initial	General	Initial	General
A	1319	> 1319	> 1334	> 1334
B	< 1	2	2	4
C	> 1319	> 1319	> 1334	> 1334
D	> 1319	> 1319	1248	1334
E	> 652	> 652	575	> 662
F	1	2	1	2
G	9	29	10	58

case of each of the paints in each of the immersion tests are given in Tables III, IV and V. Here again an average value was recorded where there was disagreement between duplicate panels.

The test of the samples which were exposed to "weather" conditions at 35° C., and then, after wetting, to a temperature of 47° C., has not been completed. However, after 145 days of this treatment, Paint B is the only one which has reached a state of general breakdown.

A comparison of all of the "general breakdown" results which are contained in the various tables is given in the chart in Figure 2.

Discussion

In an article of this kind only a few of the more important points can be discussed.

It is obvious that there was a very great difference in the performance of the seven chemical-resistant paints which were used in these experiments. In the cases where a comparison was made, some of the chemical-resistant paints were much superior to the best of the ordinary paints. On the other hand, other chemical-resistant paints proved to be inferior to the best of the ordinary paints.

The results indicate that a paint which is satisfactory under one set of conditions may be entirely unsatisfactory under another set of conditions. This is well illustrated by the performance of Paint G under high humidity conditions and when immersed intermittently in the sodium chloride solution.

It also is indicated that equally good performance is not obtained under conditions of intermittent immersion and partial immersion in the same solution. This is shown clearly in the case of Paint G when it was intermittently and partially immersed in the sulphuric acid solution, and also when it was intermittently and partially immersed in the sodium chloride solution.

It is important to note that the conditions of these tests were quite severe compared to those frequently encountered in service. For instance, rain ordinarily falls much less frequently than once every twenty minutes. Thus a paint, such as Paint B, which withstood the "weather" test for 95 days, probably would withstand actual weather conditions for a much longer period. However, it would be highly advisable to test this assumption before putting it into actual practice.

The performance of Paint A when it is intermittently immersed in sulphuric acid solution is another example of the same type. Although the paint withstood the effect of intermittent immersion in 10% acid for 106

to Page 75 →

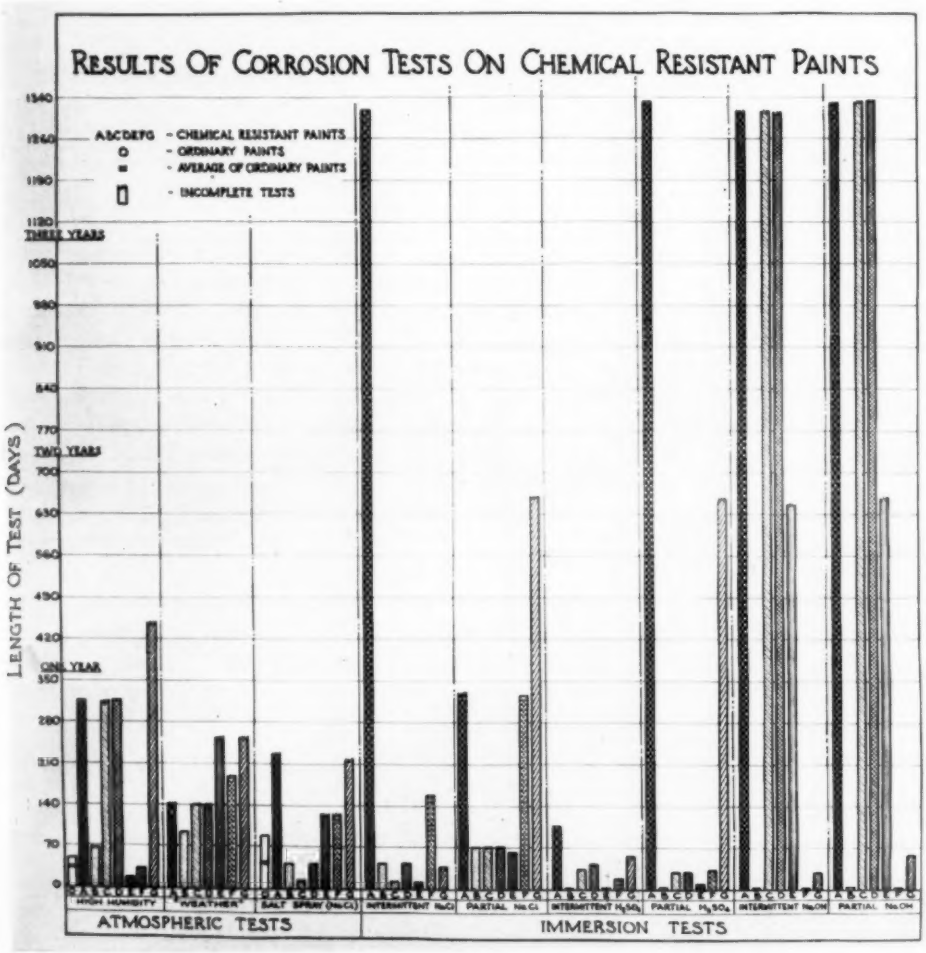


Figure 2 — In this chart is shown the length of time required to produce general breakdown in the seven paints in the various tests.

Dry drawing lubricants for deep drawing operations

characteristics of "dry" drawing compounds and methods of application

by Richard F. Roy • GILRON PRODUCTS COMPANY, CLEVELAND, OHIO

DRY drawing compounds are usually compounded and shipped as a dry powder to eliminate the weight and costs of shipping water, in which it is soluble. These dry powders are free flowing and are not subject to caking. They are easy to handle and economical to use because of the reduced amount of waste. Dry drawing compounds are dissolved in water at concentrations ranging from 2 to 24 ounces per gallon, depending on the severity of the draw and the finish on the metal. The smoother the metal, the lower the concentration; the rougher the metal, the higher the concentration. Concentration is carried in proportion to the severity of the draw. Solution temperature is maintained between 190° and 210° F. which insures uniformity and adherence to the metal.

Hardness of water

In some cases, the hardness of the water must be considered because of the organic materials in the dry drawing compound. In using extremely hard water, there are two methods which will insure proper solution of the dry drawing material and prevent the hardness of the water from reacting with the organic ingredients. One method involves the addition of certain chemicals which retard the action on the organic materials. The other method merely involves softening the water before the dry drawing compounds are dissolved. This latter method is usually recommended as the most satisfactory. When dissolved in water, dry drawing compounds result in a thick solution which thins when the temperature is raised sufficiently to break the jel which is formed by the organic materials in the dry drawing compound.

RICHARD F. ROY fini-hfoto

Cleanliness of steel

The cleanliness of the steel to be coated is of primary importance in the application of dry drawing compounds. This is accomplished with the use of a cleaner which removes all oil, whether mineral, animal or vegetable, as well as the shop soil, which collects on the metal in the course of transportation and storage or warehousing. To secure proper performance and eliminate failure of dry drawing compounds, this cleaning operation is necessary. This point cannot be overemphasized and involves impressing upon the operators the importance of eliminating carelessness. Clean metal assures good adherence of dry drawing compound. *Clean metal also insures an even coating which in turn reduces die build up and patterning of the metal.*

Proper cleaning lengthens the life of the dry drawing solution because the soil, oil and foreign substances are not carried into the solution. It has not been found necessary to clean porcelain enameling iron, as this iron is usually supplied by the mill free from oils and ordinary soil. This reduces the cost of application for this type of material. However, if this metal is purchased from warehouses or the like, where the metal is oiled to protect it from atmospheric conditions, the cleaning operation cannot be eliminated. If an alkaline cleaner is used instead of a vapor degreaser, care should be used to select a properly balanced cleaner. *Emulsion cleaners should never be used immediately prior to the application of dry drawing compounds.*

Application by dipping or roll coating

Many methods have been tried, but up to the present time only two ways can be advocated for the successful application of dry drawing lubricants which insure the proper drawing of metal.

The first, and original method, involves dipping the blank into an aqueous solution of hot, dry drawing compound. -This method is widely used throughout the industry. This requires a rack for the metal, a chain fall or electric hoist, three tanks of a size to accommodate the largest blanks, and a dryer. The blanks are mounted in a rack, which keeps the blanks separated from each other. The rack is lowered into the cleaning tank that has been charged with a suitable cleaner and is allowed to remain until all grease, oil and soil are removed. The rack and blanks are

then transferred to the rinse tank which is fed with clean running water and is allowed to remain until all the cleaner residue is removed. It is then transferred into the tank of dry drawing lubricant solution, where it remains until the metal to be coated reaches the temperature of the solution. Upon *removal* of the blanks from this tank, even drainage takes place leaving an even self adhering lubricating film. Preferably, these blanks are then transferred for dehydration to the dryer, which is maintained at a temperature of from 275° to 325° F. When the film has been thoroughly dried, the blanks are ready for drawing, without further lubrication.

The film, which has been formed on the blanks, is quite thin and absolutely dry. If desired, the confirmation of the presence of this film can be verified by scraping the surface of the stock and a small curl of coating will result.

Under normal operating conditions, the coating deposited on the metal is an amorphous-like microcrystalline homogeneous film. Care should be exercised to maintain an absence of excessive foam on the tank of dry drawing compound as an excessive amount of foam, if allowed to deposit on the blank, will prevent the proper coating of the blank with the compound. When the solution is first made up, a considerable amount of foam is present. However, when the tank of hot dry drawing solution is raised to a temperature of 200° F. (but not to the boiling point), this foam will subside and a level tank of solution will result. It is pointed out that a controlled drying temperature is imperative, as too high a drying temperature will have a tendency to make the coating brittle which would cause failure in subsequent drawing operations. Too high a temperature also has a tendency to char the coating and will interfere with proper lubrication.

Roll coating machinery

The second method of coating metal with a dry drawing compound, utilizes a new method of applying dry lubricants by special rolls. This is a new process insofar as the application of dry drawing lubricants are concerned.

Machines are now built and operated for this new method of applying dry drawing compounds. These machines perform all the operations involved in the complete cycle of application. The blanks are cleaned, rinsed, coated and dried. They produce maximum efficiency for any and all types of drawing operations. The cleaning is performed with an alkaline cleaner and revolving brushes and the blanks are spray rinsed. The blanks are then coated with special coating rolls and passed on to the drying compartment which is thermostatically controlled to insure proper drying of coated blanks. This chamber may be heated with gas, electricity, or steam coils as desired. The advent of these machines has influenced more fabricators to adopt and use the compounds.

Applicability to job

There are many compounds on the market today which are termed "dry drawing compounds" and so-called

to Page 75 →

In this plant enameling sheets are taken from storage and dipped in a dry type drawing compound before they are taken to this washing machine tub press, one of three similar tube press lines.

finishfoto

Pressed Metal Institute annual meeting

metal stampers enjoy a boat trip and a Canadian visit as part of their annual business get-together—hold election of officers

A full exploration of the problems a "percentage war" economy marked the annual meeting of the Pressed Metal Institute held at the Hotel Tadoussac, Quebec, September 13, 14 and 15.

The meeting included a boat trip down the St. Lawrence and up the Saguenay River, which extended the meeting through the entire week of September 11-17.

Unusual among conventions, this meeting had but two general sessions. Other sessions were set as committee meetings and were participated in by members of respective national committees, plus any others in attendance at the convention who were interested in the activities under discussion. In this manner, the committee proper was enabled to benefit by the broader experience represented in the group, with resultant decisions based upon a more complete discussion than normally is the case in the small committee meeting.

Committees which held sessions as part of the convention included the Technical Research and Standards, Industry Mobilization, District Chairmen, Industrial Relations, Associate Members, and a newly created Educational Committee. Only closed sessions of the convention were those of the Executive Committee and the Board of Directors.

The Industry Mobilization Committee session was briefed on recent developments in Washington, D. C., by Oliver Fancey, Washing representative of the Institute, who flew to the meeting with last-minute information after preliminary meetings with National Production Authority personnel. Preliminary tabulations of industry capacity and equipment availability also were reported upon. Plans were completed for continued liaison efforts between various procurement offices and the members of the Institute's Mobilization Committee.

PRESIDENT WOLF

"Facts about stamping"

The Technical Research and Standards Committee reported an enthusiastic reception of the booklet "FACTS About Stamping," and recommended that immediate steps be taken to develop additional information for inclusion in a revised edition to be published shortly. This Committee also reported on the efforts now nearing completion to develop a series of contract terms which might be recommended to the industry for its use. As a corollary to these terms it will be necessary that a booklet on tolerances be prepared and published.

Technical session planned

The Associate Members Committee reported that their group would sponsor a technical session such as was undertaken last March *(see "Pressed Metal Institute Sponsors Technical Symposium," April 1950* finish), with a two-day meeting tentatively scheduled for Cleveland, Ohio, about the middle of March, 1951. Early plans indicate that the sessions will be given over to discussions of die standards, tolerances, and the general subject of conversion to stampings.

A report of the original activity on the newly created Committee on Education was made by Wilfred Williams, of Acklin Stamping Company. As a result of a preliminary survey made among engineering colleges, it was determined to offer cooperation through speakers; display boards, where desired; and increased effort to have additional courses in die design, blueprint reading, and allied subjects introduced. To this end, PMI local groups were urged to cooperate with colleges in their areas to supply qualified instructors with practical shop backgrounds.

Plant visitations for high school seniors to be encouraged

As an additional activity of this group, the individual districts and members are being encouraged to suggest to school authorities plant visits for high school seniors to present these potential employees an introduction to the type of plant the industry offers, the type of product, and the future which is offered as the economy is enabled to "Advance with Stampings."

PMI elects new officers

Howard C. Wolf, assistant to the president, Mullins Manufacturing Corporation, Salem, Ohio, was elect-

to Page 32 →

Snapshots of PMI Members . . . →

Some PMI associate members: R. A. Hallman, Ferracute; C. L. Linduska, Clearing; Ray Peterson (chairman), Peterson Engr.; Geo. Herrick, Lima-Hamilton; Fred Littell, Littell Machine.

Mesdames Nigro, Jeschke, Adams and Baker enjoy trip up Saguenay.

Bowling on the green was a new game for many. Joe Boehm, Boehm Pressed Steel, watches W. H. Brett, AllianceWare, roll a score.

Nearly everyone had a camera including: Jack Sellas, Detroit Metal; and Bryant Gemmill and Clarence Custer, American Stamping.

Mrs. R. Peterson; Curt Hoerig, of Geuder, Paeschke & Frey; Mrs. Wilfred Williams; Ray Peterson, Peterson Engr.; Mrs. C. Hoerig.

From the Manor Richelieu, Mrs. Glen Rose and Mrs. Geo. Herrick head back to the dock via the "best" means of transportation.

Joe Boehm, Boehm Pressed Steel; Mrs. Wm. Miller; Howard Wolf (standing), Mullins Mfg.; Mrs. Wolf; Mrs. K. A. Honroth.

Oliver Fancey, left, PMI Washington representative, is shown conferring with O. B. Werntz, PMI managing director.

C. M. Merembeck, American Metal Specialties; Warren Peterson, Peterson Products; and Joe Boehm, Boehm Pressed Steel.

Watching the waves are F. C. Greenhill, Acklin Stamping, Sam Hull, Worcester Stamped Metal; Fred Claflin, Johnson & Claflin.

Shown giving thought to Education Committee business are: Jeschke, Hallman, R. Peterson, Hoerig, Littell, and Baker.

Sunning themselves are C. Glenwood Rose, Judson & Rose, Owen Wenning, Worcester Pressed Steel; Geo. Herrick, Lima-Hamilton.

For work in helping develop the Chicago PMI District, Clem Caditz, receives plaque from Owen Wenning, toastmaster.

Mesdames Rose and R. Peterson, R. Peterson, W. Peterson, Mrs. Williams, W. Williams, Mrs. Singleton, Jerry Singleton.

A songfest included Glenwood Rose, Judson & Rose; Jack Sellas, Detroit Metal Products; and Tom Baker, National Stamping.

Mr. and Mrs. W. H. Brett enjoyed refreshments with Mrs. Rodman and C. R. Rodman (all of AllianceWare, Alliance, O.).

Shown are some of the PMI officers for 1950-51. Seated, left to right, Howard Wolf, president; Hunter Morrison Jr., secretary-treasurer; and S. P. Hull and Lawson Adams, directors. Standing, left to right, directors Wm. Miller, Warren Peterson, Ray O'Brien, Ray Peterson, C. C. Caditz, Clarence Custer, and Thomas Baker (also vice president).

→ *from Page 29*

ed president of the Institute. Other officers selected were Thomas L. Baker, vice president, National Stamping Company, Detroit, Michigan, selected as vice president of PMI, and Hunter Morrison, Jr., vice president, Morrison Products, Inc., Cleveland, Ohio, who was named secretary-treasurer of the Institute for the coming year.

Executive committee members

Members of the Institute named to the PMI Executive Committee for the coming year and are the newly elected president and vice president; Orrin B. Werntz, Institute managing director; Woodard G. Jeschke, presiden, Res Manufacturing Company, Milwaukee, Wisconsin, immediate past president of the Institute; Sam Morrison, president, Morrison Steel Products Company, Buffalo, New York; Samuel P. Hull, sales manager, Worcester Stamped Metal Company, Worcester, Massachusetts; and William H. Miller, assistant general manager and sales manager, The Bossert Company, Utica, New York.

New directors

Those who were elected as directors of PMI for the coming year include:

Lawson Adams, Wrought Washer Manufacturing Company, Milwaukee, Wisconsin; Wallace F. Ardussi, Variety Machine and Stamping Company, Cleveland; Walter T. Baird, The Toledo Pressed Steel Company, Toledo; George W. Ballantine, Sheet Metal Specialty Division, Follansbee, W. Va.

Ralph B. Britton, The Stanley Works, New Britain, Conn.; C. C. Caditz, Northern Metal Products Co., Chicago; Stanley R. Cope, Acme School of Die Design, South Bend, Ind.; C. W. Custer, American Stamping Co., Cleveland; F. C. Greenhill, Acklin Stamping Co., Toledo.

SECRETARY-TREASURER MORRISON

John F. Herkenhoff, The Minster Machine Co., Minster, Ohio; Samuel P. Hull, Worcester Stamped Metal Co., Worcester, Mass.; Herman Kesler, American Metal Specialties Corp., Hatboro, Pa.; William H. Miller, The Bossert Company, Utica, N. Y.; R. C. O'Brien, Means Stamping Co., Saginaw, Michigan.

Warren A. Peterson, Peterson Products Corp., Chicago; Raymond Peterson, Peterson Engineering Co., Toledo; and Thomas J. Turk, Indiana Pressed Steel Co., Muncie, Indiana.

PMI district meetings

THE first dinner meeting of the fall season of the Toledo District of the Pressed Metal Institute was held Monday evening, October 9, with 50 industry members present.

New district officers installed include: James M. Leake, Leake Stamping Co., chairman; George Lober, Superior Spinning and Stamping Co., vice chairman; Clyde Morrison, Metal Electric Processing Co., secretary; Art Hebbeler, American Metalcraft Co., treasurer; Walter Baird, Toledo Pressed Steel, national director of district; Cy Greenhill, Acklin Stamping Co., national director at large; Ray Peterson, Peterson Engineering Co., chairman of directors of associate members.

A full house of approximately 200 persons attended the Chicago District's first meeting which was held Wednesday evening, October 4. The discussion centered around the current steel situation. Orren B. Werntz, PMI managing director, of Cleveland, complimented the Chicago group on their growth as they began their second year as a separate district of the Institute.

Pocketbook economics

an outline of what every reader can do to preserve sound economy in his own pocketbook, his home, his company and his country

by W. W. Sebald • PRESIDENT, ARMCO STEEL CORPORATION, MIDDLETOWN, OHIO

SO MUCH has been written on the subjects of the Free Enterprise System or The American Way of Life that it would fill a large library, and attempting to add something more may be like trying to raise the level of the Atlantic Ocean by adding a few drops of water. Why should we continue to talk about this old subject?

Free enterprise, too, is vital to our American way of life. You and I agree on that, so what's the problem? All of us know what has been accomplished under the free competitive principles we inherited with the founding of our government, so what are we concerned about?

It seems inconceivable that the economic system which history shows has no rival could possibly be in danger, but it is. Today there is a real and imminent threat of having the sound foundation on which our success has been built cut out from under us. Our problem then is, what are we going to do to preserve those things which have made the United States of America the most progressive nation in all history and given its people the highest standard of living ever known?

To solve any problem, we start with certain facts we know. For one thing, we know there is a lot of talk about security. That's not new, for men have had that as a goal since the beginning of civilization. The urge for it has been a great motivating force for progress and a stimulant for men to strive to get up in the world. However, today it seems that almost everybody would like to have the good things of life handed to them on a silver platter. It is one of the inescapable facts of life, though, that if we are going to eat, somebody has to pay the bill. Unfortunately, too many of us have been impressed with the distorted philosophy of getting something for nothing.

We must change our ways

We know that unless we change our ways and stop tapping Uncle Sam's till we shall inevitably become a controlled and a socialistic state; that we shall lose our freedom and personal incentive; and along with that we shall be robbed through the lower purchasing power of our money. Even now money is being pumped into circulation by our government faster than the increase in production warrants. The effect is the same as though money were turned out on the printing press without the formality of borrowing on proper security. The reduction in the value of our dollar will cheat those who have been thrifty. Every man and woman who has savings and life insurance will be able to buy less with his money. That will be like depositing money in the bank and then discovering later you can withdraw only part of it.

When we stop and think a minute, it is not surprising that we have this problem of preserving our economic security to solve. In the first place, many of our people have been misled and consequently are in favor of more subsidized prosperity. During the past ten years all branches of our economy have had a busy time. Industry has been pressed for production of all kinds of things, and price has not been much of a limiting factor. Agriculture has had enormous subsidies. Our government, too, has experienced prosperous years. It has more people on its payroll than ever before. Its income through taxation has been unprecedented, and it is spending our money with philanthropic abandon. The war, *(World War II)* of course, sparked this great business activity and has kept most of the country's working population fully occupied during the past ten years at high dollar rates and high take home pay. With all this prosperity, it's easy to see why so many of us are floating along with our heads in the clouds and forgetting about the storm gathering below.

Lack of understanding

There is another reason why we have the problem and that clearly is because such a large number of our citizens lack understanding of how our economic system works. If this were not so, they would not be misled by the smokescreen of promises of something for nothing with the glitter of security, welfare and subsidy programs.

The American people are not dumb. When given the facts they can be counted upon to reach the right conclusions and to do what is fair. However, we see turmoil all around us because of lack of knowledge of the facts—in international situations—in our own governmental affairs — in management and labor relations—in economic problems—and in our daily contacts with our friends and acquaintances.

Analyzing ourselves

Let's analyze ourselves a bit. With how many people do we talk besides our immediate associates and friends who understand and see the situation as we do? Are we saying to ourselves, my company is contributing

a lot of money to various organizations which are working at the job? Do we feel radio commentators, newspaper columnists and magazine writers are the ones who should enlighten the public? Are we assuming that since many groups and organizations are trying to keep us on the path of understanding, and since a lot of individuals are spending their money and giving themselves in a martyr-like zeal, that is enough?

All this effort is having its effect, but it's not enough. What is needed to do this job right is your personal help. That is a logical assumption because the positions you hold show you have the leadership it takes to do the job. If we find reasons for excusing ourselves from working at this task, we are not, I believe you will agree, doing our part as citizens—nor are we accepting our full responsibilities as managers of business.

How to be effective

If this is true, isn't it about time you and I, and other Americans who see the problem, get off the sidelines and get into the game? How can we carry the ball—how can we be most effective, and in the shortest time? My answer is, let's talk about what practically all men and women are interested in and what will get their attention the quickest. I say, let's use a rifle instead of a shotgun and aim at a really sensitive nerve center—their pocketbooks. Let's talk pocketbook economics.

There is a vast audience whose pocketbooks are being touched, and they don't realize it. Certainly, no one likes having his money taken away from him and given to someone else for services not performed, but that is what is going on.

Let's make it our job to tell this story of the flattening pocketbook to the men in our plants. Let's do it man to man, by rubbing elbows with them and seeing that they know what all these welfare and subsidy programs will do to the purchasing power of their money, to their life insurance and savings; and what will happen to their freedom. Let's not deal at arm's length on this, or in fact, on any subject which is in their personal interest. That's always good employee relations.

And it's well worth-while to keep in our minds that men follow their leaders. If you and I dig into this problem as we should, our supervisors and foremen will, too. And a lot of digging it will take, for this job will not be done in the easy way, nor by magic. The effort is really worthwhile, for just imagine what would be accomplished in spreading understanding if all of the supervisors of our industry became steamed up about this problem.

Understanding brings benefits

The pocketbook doctrine will help us get the story across and will make clear there is no such thing as getting something for nothing. If our people understand they will have to pay the fiddler in one form or another, they will fire the fiddler and turn on the radio. Our political representatives will change their tune, too, for they are bound to be influenced by what they think we want. Remember, these men are fully conscious of the blocs of votes represented by the minority pressure groups which want something, just as we are influenced to keep our customers by shipping them what we think they want.

And while talking about votes, we need to use our influence in that direction, too. I don't mean how to vote, but to get people to go to the polls to vote. Recently I heard of a survey made in a plant which showed that only between 50% and 55% of the employees and their wives had even registered to vote. Maybe you don't think this condition exists in your plants. The manager of the plant I just mentioned didn't think so either, so you might be surprised what you find.

No doubt most of your companies help your employees with their income tax problems. Why shouldn't we offer a similar service to help them become registered voters? If your experience is like that of the plant in which the survey was made, you will find this service is welcomed. During the survey, cards were handed out asking men to sign their names if they wanted information about registering. More than 50% said they did. Surely, we see how important this is. All our talk and effort to create understanding and to give people the facts will not have much effect if our citizens cannot vote for what they think is in their country's best interests.

Double taxation

We often mistakenly take for granted that people understand what we understand. As an example, you would think that almost everyone understood double taxation. The other day I was talking to a banker in our town, and he told me about a man who worked as a mechanic in a garage. He was a good mechanic, and the owner offered him an interest in the business. He borrowed the money from the bank and after a while proudly came in with his first dividend with the intention of applying all of it to reduce his loan. The banker reminded him that his income taxes would be due shortly and that he had better hold some of his dividend in reserve for that purpose. This new owner of the business said, "Oh, no. The company has already paid the tax; so there's no tax due on this dividend." When he was enlightened and learned the sad news of double taxation, he became quite militant and said, "That's not fair. Something should be done about it." His pocketbook was affected, and he now understands.

The company I represent has been working at this problem for years, and recently we tried some different and more effective approaches. At present we have a course which has been given to superintendents and foremen and now is being extended to the rest of our men. The results have been so good we are inviting ministers, teachers and high school pupils to the plants and giving them a brief version of the course. The subjects discussed are many and include the Bill of Rights, the effect of taxes, subsidy programs, government controls and others.

Many simple and homey illustrations are used to make clear the sub-

to Page 76 →

HD-N

Cuts Cleaning Time

Cowles HD-N Cleaner, the *new* heavy-duty soak cleaner for ferrous metals, will often do in 10 minutes what it takes other cleaners 30 minutes or more to do. It is specifically formulated as a straight or barrel soak for precleaning before plating, enameling, pickling, painting, back-shop reconditioning—or anywhere a heavy-duty cleaner is needed to remove stubborn types of soil.

The latest developments in metal cleaning research have been incorporated in HD-N to assure maximum detergency under all conditions of usage.

HD-N may also be used on such active metals as brass and zinc, if some attack is acceptable.

HD-N penetrates and removes such soils as oil, carbon, grease, drawing compound, graphite, road and shop dirt in *one* cleaning operation. It is fast, thorough, and does a complete job . . . is readily and completely soluble in hot water.

COWLES CHEMICAL COMPANY
Metal Cleaner Department
7016 Euclid Avenue • Cleveland 3, Ohio

WRITE FOR *complete information—the attached coupon is for your convenience.*

Cowles Chemical Company
7016 Euclid Avenue
Cleveland 3, Ohio

Please send me complete information on COWLES HD-N CLEANER.

Name_____

Company_____

Address_____

City_____ Zone____ State_____

PEI FORUM SNAPSHOTS

Left row, top to bottom: (1) P. Stuffit, Pemco; R. W. Foraker, Titanium Pigment; Geo. Updike, Pemco; W. B. Anderson, Titanium Pigment. (2) James Readle, Porcelain Steel; Geo. Martin, Pemco; John Krivec, Murray Corporation; James Vice, Porcelain Steel. (3) G. A. Cairns, Macco Products; M. E. McHardy, Hussman Refrigerator; R. O. Cox, Day Brite Ltd. (4) Joe Baker, Int'l. Harvester; Bob Baker, Frigidaire. (5) Rud Porter, Carnegie-Illinois; W. A. Deringer, Floyd Bailey, A. O. Smith.

(finishfotos taken at Porcelain Enamel Institute forum)

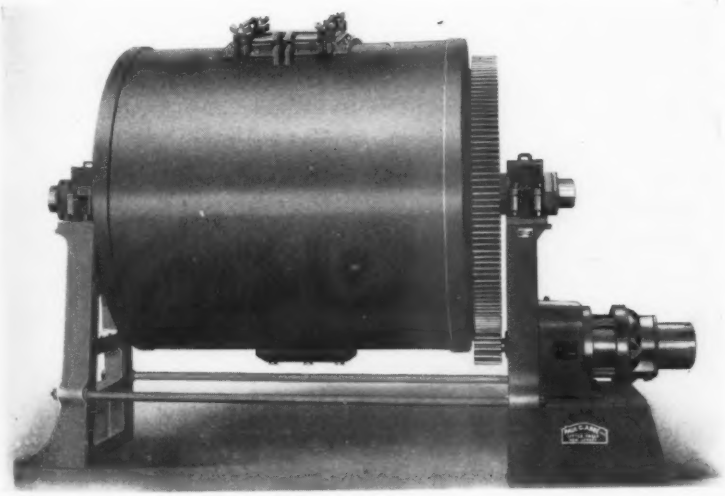
Right row, top to bottom: (1) Joseph Dora, Atlas Enameling; Chas. Fleming and Glenn Lynn, Ingersoll Steel; Byron Schiller, Boston Stove Foundry. (2) Oakley Garlick, Paul O. Abbé; George Warren, PEI Fellow. (3) E. H. Shands, Geo. D. Roper; Bill McGohan, Armco. (4) L. B. O'Bannon, Battelle Institute; E. E. Marbaker, O. Hommel; J. J. Canfield, Armco.

"Because Mills Are A Long-time Investment"

Profit by these exclusive features of

PAUL O. ABBÉ ALL-STEEL BALL and PEBBLE MILLS

- Cylinder ends of steel instead of iron castings.
- Trunnions one-piece alloy steel forgings.
- Cylinders electrically welded throughout.
- Drive mounted on solid assembly for smooth action and firm resistance to starting torque.
- Many other engineered features found only in mills designed and constructed by Paul O. Abbé of Little Falls, New Jersey.



Typical Paul O. Abbé All-Steel Mill with "Compack" Motor Drive and magnetic brake for inching. (Silent chain and V Belt Drives also available.)

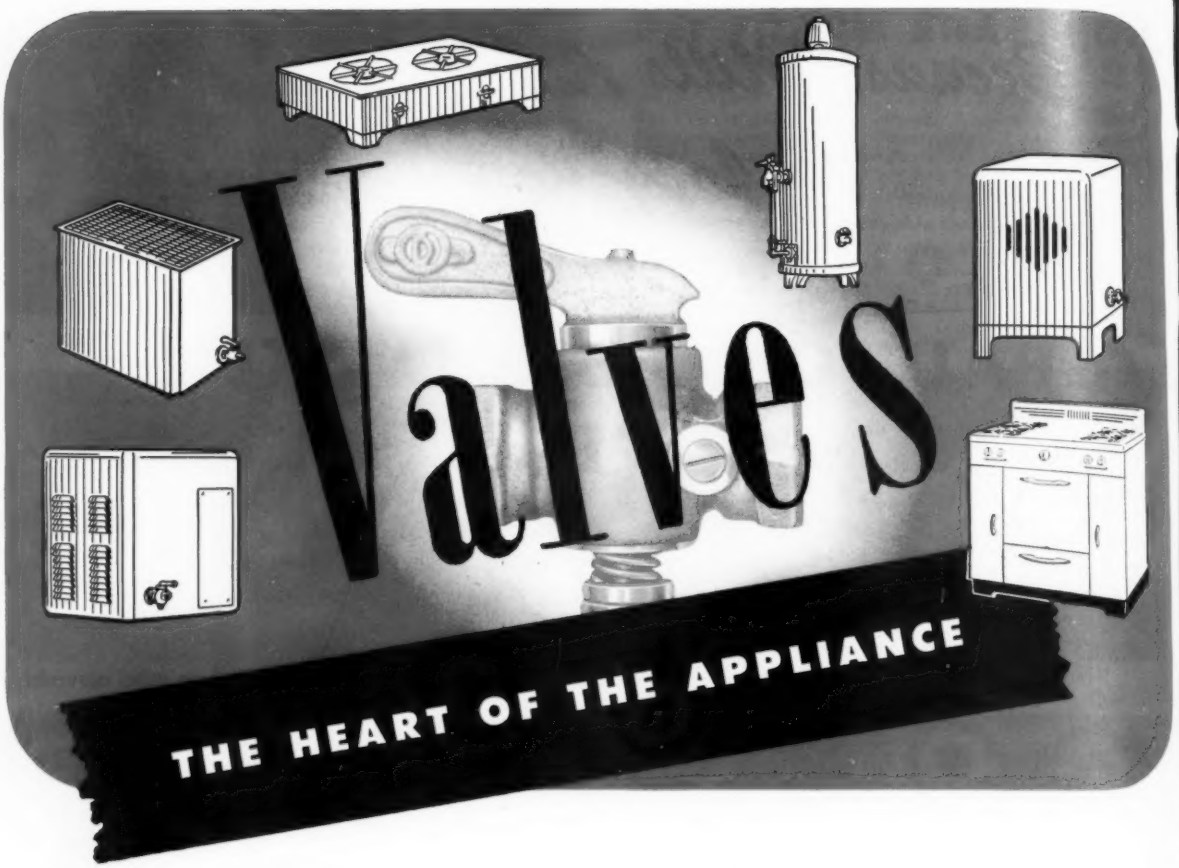
Send for our Catalog U for complete facts concerning Ball and Pebble Mills, Jar Mills and Mixers for your complete grinding and mixing requirements.

PAUL O. ABBÉ INC

Specialists in Grinding and Mixing

377 CENTER AVENUE **LITTLE FALLS, NEW JERSEY**

Agents: PEMCO CORPORATION, BALTIMORE, MD.



BE SURE THEY'RE THE BEST

Ultimate consumer reaction is influenced by valve efficiency and dependability. Materials, workmanship and engineering knowledge incorporated in the appliance demand valves of comparable calibre—valves that not only enjoy the long-standing recognition accorded to Detroit Brass products, but also valves backed by the assurance that they are designed to perform for the life of the appliance.

The fifty-year reputation of Detroit Brass for "quality-only" products is maintained in the company's ever-widening contribution to a great industry. The ready approval of the quality and service policy of Detroit Brass is attested to by the number of distinguished customers who for years have depended on this company as their main source of supply. Added to this are the expanded Detroit Brass facilities for the design, development and proving of special components —a service always available to you. That's why we say, when it's valves for gas—

BE SURE THEY'RE DETROIT BRASS

DETROIT BRASS & MALLEABLE WORKS

DETROIT 9, MICHIGAN

Manufacturers of bulk or packaged Malleable Fittings . . . Cast Iron Fittings . . . Drainage Fittings . . . Air Cocks . . . Brass Service Cocks . . . Stop and Waste . . . 100- and 125-Pound Gate and Globe Valves.

American Gas Association holds 32nd annual convention

industry's largest exhibit of gas appliances and equipment sponsored by Gas Appliance Manufacturers Association

THOUSANDS of men and women interested in the manufacture, distribution and sale of gas and gas-using equipment met at Atlantic City the week of October 2 for the 32nd Annual Convention of the American Gas Association and the accompanying exhibition of gas-using appliances and equipment.

A heavy program of meetings, including both general sessions and meetings for specialized sections and groups, was scheduled for the week. The programs included papers on technical subjects, business problems, and selling.

Leaders in the utility field voiced their sentiments in regard to the requirements for future progress in the gas industry, and pointed candidly to the requirements within the utility field and what might be expected of the equipment and appliance manufacturers.

The appliance manufacturers were equally well represented on the program, and were equally frank in placing responsibilities with both the manufacturing group and the utilities.

Hulcy new president

D. A. Hulcy, president, Lone Star Gas Company, Dallas, Texas, heads the American Gas Association's new officers, elected for 1950-1951, as president. Other officers elected simultaneously were: first vice president, George F. Mitchell, president, The People's Gas, Light & Coke Co., Chicago, Ill.; second vice president, C. E. Bennett, president, The Manufacturers Light & Heat Co., Pittsburgh, Pa.; and treasurer, Edward F. Barrett, president, Long Island Lighting Co., Mineola, N. Y.

In speaking before the group, Mr. Hulcy referred to the accelerating advance of natural gas, which, he said, will soon reach every state in the country. He referred to this spread of natural gas as a "motivating force" drawing the whole industry closer together. This statement was made before a joint session of the Natural Gas Department and Manufactured Gas Department of AGA.

It was noted that a meeting of the Northeastern and Southeastern Districts of the Liquified Petroleum Gas Association was also held in Atlantic City during AGA week. The LPGA session was opened by Howard D. White, executive vice president of the group. Gen. Leslie R. Groves, head of the Oak Ridge atomic energy "Manhattan Project", was luncheon speaker.

New GAMA officers take office

Recently elected officers and division chairman for 1950-1951 of the Gas Appliance Manufacturers Association (announced earlier in *finish*) were inducted at a Board of Directors meeting held during the Convention.

The officers are headed by Frederic O. Hess, president of Selas Corporation of America, Philadelphia, as president. Others taking office were: Louis Ruthenburg, chairman of the board, Servel, Inc., Evansville, Ind., first vice president; A. B. Ritzenthaler, vice president, Tappan Stove Co., Mansfield, Ohio, second vice president; Lyle C. Harvey, president, Bryant Heater Division, Affiliated Gas Equipment, Inc., Cleveland, Ohio, treasurer; and H. Leigh Whitelaw, New York, secretary.

At the same time announcement was made that GAMA membership has reached an all-time high of 600.

Many of the new and improved types of gas appliances and equipment that will be installed in millions of homes and hundreds of factories during the next few years were shown Monday, October 2, through Friday, October 6, at the Biennial Exposition of the Gas Appliance Manufacturers Association held in the Atlantic City Auditorium.

Approximately 1200 new and improved products ranging from clothes dryers and ranges to huge gas fired industrial boilers and single-unit heating-cooling devices were displayed at the five-day show. Exhibits by 175 manufacturers covered 70,000 square feet of floor space, making this the largest exposition ever conducted by the gas industry, according to Association spokesmen.

Cuthrell pictures industry progress

Hugh H. Cuthrell, retiring president of AGA and vice president, The Brooklyn Union Gas Co., Brooklyn, N. Y., spoke of "Gas—the Flame of Progress," and presented impressive statistical evidence of gas industry progress during the past year.

"Customers served by gas utilities," said Cuthrell, "total nearly 24 million, a gain of more than one million in the past year. Add to this the five and one-half million LP gas customers and we see that nearly 30 million American homes are receiving the benefits of the blue flame."

According to Mr. Cuthrell, utility gas revenues were 10% higher than for the previous year and more than double the industry's revenues of ten years ago. He stated that the gas utility industry has on the planning boards over three billion dollars worth of new facilities to go in by

Showing how "cheesecake" was put to good use in demonstrating gas appliances at the huge GAMA exhibit.

1954, with six billion dollars to be spent in the ten-year period ending in 1954. He said that this total is a billion dollars more than the value of the total gas utility plants in service at the beginning of 1945.

Referring to progress in the extension of distribution facilities, he said "Spearheading this progress, of course, is the natural gas branch of the industry. The major pipeline projects will add a carrying capacity of nearly three billion cubic feet per day. The largest authorized line in 1949-1950 was the Texas Illinois Natural Gas Pipe Line Company's 1328-mile project from Houston, Texas, to Joliet, Illinois. Another industry milestone is the near completion of the Transcontinental Pipe Line Company's 1300-mile line to serve the New York metropolitan area. Natural gas for New England and the Pacific Northwest came much closer to the actual construction stage this year."

On the question of resources, Mr. Cuthrell had this to say: "But what about our resources? Natural gas now supplies 20 per cent of the total energy supply of the United States, compared with 11 per cent in 1940, and 4 per cent in 1920. In the face of this use, are we in danger of exhausting this vital fuel? That question now directly concerns millions of people, and our national and state governments as well. We find the situation today completely reassuring.

GAMA's new president, Frederic O. Hess (left), president of Selas Corporation of America, is shown with AGA's retiring president, Hugh Cuthrell, vice president of Brooklyn Union Gas Co., and AGA's new president, D. A. Hulcy, president of Lone Star Gas Co., Dallas, Texas.

View of the largest exhibit in the history of the Biennial Exposition of the Gas Appliance [illegible]urers A

Natural gas reserves at the end of 1949 were 180 trillion cubic feet, according to estimates of the AGA Committee on Natural Gas Reserves. This compares with 174 trillions one year earlier. Reserves advanced six and a half trillion cubic feet despite record net production of more than six trillion during the year . . .

"We are on the right road in our national promotions but we need more weight behind them", insisted Mr. Cuthrell. In a note of warning to the appliance manufacturer, he continued "We have a good national advertising program but it needs more manufacturer support if we expect to 'set the style' in the American home of the future. I realize that we cannot advertise merchandise when we have no appliances to sell, *but we can condition people through a long range program of promotional advertising.* Many of us this month are going through an irregular supply situation on new appliances. I am alarmed to hear that some companies have cut down drastically on their advertising to such a point that they may soon find themselves with products to sell and no one inquiring about them. It's good business sometimes to trim, but the company that throws its advertising overboard is in my opinion extremely shortsighted."

In defense of the appliance manufacturer, he pointed to the necessity for all-out support of the utilities when major appliance improvements

At the GAMA exhibition office, "Mrs. America" was on hand to greet appliance manufacturers and dealers.

GAMA's retiring president, Stanley Hobson (left), of Geo. D. Roper Corp., and Hugh Cuthrell, AGA's retiring president, are shown receiving the keys to Atlantic City from "Texas Tessie", the symbol of the coming of natural gas to the South Jersey area.

...urers Association which was held from October 2 through 6 at the Atlantic City Auditorium.

are made. In this connection he said "An improved range is no good to him (the manufacturer) if 50 per cent of the country's gas utilities fail to support it for one reason or another."

Hobson calls for "fresh thinking" by industry leaders

"You can't drive spikes with a tack hammer", warned Stanley H. Hobson, retiring GAMA president, and president of Geo. D. Roper Corp., Rockford, Illinois. He said "It is my feeling that one of the greatest responsibilities we all have is to bring some freshness and crispness into our thinking as it concerns our business problems. Associations who do their best jobs today are usually gifted with the ability to produce this kind of thinking. Fresh thoughts, fresh ideas are a '*must*' if we are to continue to grow and to expand. We can not wander around in a sea of darkness born necessarily of past performance. We must constantly be considerate of the fact that our ability to stay fresh and crisp in our thinking will determine whether we sink or swim."

Mr. Hobson pointed to single point ignition as a development of major importance this year, together with the inauguration of a program for field testing. He referred to a point of major importance from the merchandising angle, in the resolution passed by the "CP" group, to the effect that the targets for the gas range industry and for AGA should be set at 4,000,000 to 5,000,000 gas ranges per year. He then asked a pertinent question of the utility men: "How much are you really willing to spend to protect an investment of approximately $7,900,000,000, with revenues of $1,694,331,000 . . . ?"

Mr. Hobson referred to the success of the "Court of Flame" program as an excellent example of "fresh thinking, crisp thinking—*not* spike driving with a tack hammer.

He estimated that $9,500,000 will be spent for all types of advertising by all types of manufacturers in the gas industry during the current year. A partial breakdown of this shows approximately $3,500,000 being spent by gas house heating manufacturers, $1,500,000 by gas water heater manufacturers, $3,750,000 by gas range manufacturers.

Suggested figures (for national media only) show approximately $600,000 to be spent on gas refrigeration, and a probable $200,000 for "related accessories" used by the industry. Laundry dryers and incinerator equipment are listed at $120,000, for national media only.

In referring to these advertising expenditures, Mr. Hobson said, "I cite these figures to indicate to you that good progress is being made, along with the expenditure of AGA in advertising of approximately $800,000; but I remind you also that the progress to date is not sufficient and that you can't do 'Spike Driving with a Tack Hammer'."

Jones asks utilities for "all-out" sales effort

In an address "The New Sales Potential of the Gas Industry," W. Paul Jones, president, Servel, Inc., stressed the importance of greater sales and advertising effort on the part of the utilities.

"During the calendar year of 1950, it has become quite apparent that more and more real topside attention is being given to the sales needs of the industry and to the sales policies required to meet and solve those needs." But, said Mr. Jones, "this is a vast industry. There are literally thousands of gas companies. And the philosophy of going all-out for sales has yet to spread over or be accepted by a great majority of the individual units within the industry. . .

"But the idea and the philosophy of more aggressive selling, of greater and more effective sales promotion and advertising, is spreading rapidly. And well it might, as well it must, for never before was there such an opportunity as presents itself today. . .

"It is not enough to bring natural gas to a community and to rest glamorized by the sudden demand for thousands of new house heating appliances," warned the speaker.

"It is not enough to publicize the coming of this new, greater gas service, and to publicize it in but the usual way, expecting that the impact upon the public will last indefinitely.

"It is not enough to think or believe that our competition will supinely agree that natural gas is best for many uses, and that they will withdraw from the competitive arena, leaving us to take whatever measure of the market potential we desire."

Mr. Jones offered the following specific suggestions for action:

"The gas appliance manufacturer has the job, the necessity and plain duty to make gas appliances more glamorous and appealing. . .

"We can debunk competitive features all we please, but if we take that approach to the design and planning of gas appliances we will find we have stripped our business of much of its glamour and appeal. . .

"*More gas appliance advertising is needed.* But as appliances come along that have new, interesting and advertisable features, I have faith and confidence that they will automatically command and receive the needed, larger and more consistent advertising support. . .

"There are more than 8000 cities, towns and communities in the country that have organized pipe gas service. Can you imagine what the result would be if the utility outlet in every one of those 8000 centers started tomorrow on a well balanced sales coverage program on every gas appliance?

"Can you imagine the immediate result and effect upon appliance dealers when they visualized the greatly increased market that would result from such market development leadership?

"Can you imagine the vastly awakened and enlarged effort and activity that would immediately come from gas appliance manufacturers?

"Can you not visualize the greatly awakened public interest and support that would result from the activities of that vast army of salespeople and from the flood of advertising that could and would be possible from such an expanded sales level?

"It could be, it should be, and it would be a fact tomorrow, if the sales end of the utility business had only one-half the sincere and ade-

COVERAGE... WHERE IT'S NEEDED!

"Coverage Where It's Needed"—coverage all over the surface to be enameled with O. Hommel Company Tite Wite Porcelain Enamel.

Here are some of the added advantages—best typified by Hommel TITE-WITE: 15-20 gram application weights; 80-85% reflectance; a super white opaque enamel; permanent weather and acid resistance; exceptional bonding strength; lower production cost; can be drained, dipped, or sprayed; a finish superior to the finest antimony free super opaque cover coats applied at twice to three times the thickness; reduced black edging problem; practically eliminates shattering; better scratch resistance; improved thermal shock resistance.

If you have been having coverage troubles, then Hommel Tite-Wite, Hommel Powdered Clays, Hommel Oxides, and a Hommel Service Engineer, are the right combination for you to put to work.

THE O. HOMMEL CO.
PITTSBURGH 30, PA.
Pacific Coast Agents
L. H. BUTCHER CO.

Laboratory Controlled Production of Ceramic Supplies

- FRIT for Steel, Cast Iron or Pottery
- CERAMIC COLORS
- CHEMICALS
- BRONZE POWDERS
- METAL POWDERS
- SUPPLIES
- EQUIPMENT

Our Technical Staff and Samples are available to you without obligation. Let us help you with your problems.

World's Most Complete Ceramic Supplier

quate endeavor that now goes into the operations end, the financial end, etc."

Mr. Jones' final suggestion was for the promotion of an AGA Laboratories-approved system of gas piping that provides convenience outlets, as in the case of electric outlets.

Special day for appliance dealers

The 1950 "Dealer Day" program sponsored by AGA, GAMA, and the National Association of Radio and Appliance Dealers was held on Thursday, October 5. Features were "How To Do It" addresses by dealers expert in gas appliance selling; awards for outstanding selling efforts; and discussions for dealer participation. There were also special features at the exposition on that day for the visiting dealers, including valuable door prizes and entertainment.

Included on Thursday's program was the presentation of the National "King of the Court of Flame" award to the dealer of the nation who achieved top honors in selling automatic gas water heaters in the "Court of Flame" campaign. R. Louis Towne, sales promotion manager, Rheem Manufacturing Co., conducted the coronation ceremonies, at which D. A. Bell, of Denver Colo., was crowned king. He has been top salesman for automatic gas water heaters in the country for the past two years. A three-day all-expense trip for two to attend the GAMA Exposition was awarded Mr. Bell for his prowess. He was also presented with Fiberglas articles valued at $500 made possible through the cooperation of the Owens-Corning Fiberglas Corporation.

1950 spells record year for gas appliance shipments

Shipment of gas appliances set new records in the first eight months of this year, and 1950 probably will be a record year, Edward R. Martin, director of marketing and statistics for the Gas Appliance Manufacturers Association, reported. Record shipments were made of automatic gas water heaters, domestic gas ranges, gas house heating and air conditioning equipment, gas-fired furnaces, gas boilers and conversion burners.

The new records were the result of the tremendous increase in the use of gas, largely due to utilization of this type of fuel from western and southwestern fields, increased promotion on the part of the industry, and the public's increased awareness of gas for domestic uses, Mr. Martin said.

Gas water heaters up 66.5%

Shipments during the first eight months totalled 1,498,400 units, a 66.5 per cent increase over the 899,700 units shipped during the same period last year, and five times greater than the pre-war average.

In August, shipments reached a new monthly peak of 264,000 units, a 90 per cent increase over August, 1949.

Domestic gas ranges show 62.4% increase

Shipments totaled 1,902,900 units, from January to September, a 62.4 per cent increase over the same period in 1949, and double the pre-war average shipment for the period. Automatic ranges built to "CP" standards showed a 90 per cent increase in sales during the same period.

August, 1950, shipments soared to an all time monthly high of 318,000 units, a 20 per cent increase over the previous high established in March of this year when the industry shipped a total of 264,000 units.

Gas house heating, air conditioning equipment 15 times pre-war

Shipments of gas-fired central house heating equipment (furnaces, boilers, and conversion burners) reached a new "high" for the first eight months and totaled 675,100 units. This more than doubles the unit shipments during the same period of 1949 and is 15 times greater than the pre-war average for the period.

Gas-fired furnaces up 166.1% over 1949

From January to September 372,600 units shipped, an increase of 166.1% over 1949 (the industry's peak year for gas-fired furnaces), and 15 times greater than the pre-war average.

Gas boilers up 79.7%, and conversion burners up 70.7%

Shipments of gas boilers totaled 42,600 units, 79.7% greater than in the first eight months of 1949 and eight times greater than the pre-war average.

An eight-month record of 259,900 units shipped was established for conversion burners this year, an increase of 70.7% over shipments for the same period of 1949, and almost 18 times greater than the pre-war average.

Some highlights of the GAMA exhibit

THE following are a few of the highlights from the mammoth exhibit of gas appliances and equipment which took up the entire main floor and stage of the Atlantic City Auditorium main exhibit floor. So many were the excellent demonstration and exhibit ideas employed that only a few can be covered in this article.

Automatic and single point ignition for ranges

Hardwick Stove Company, Inc., of Cleveland, Tennessee, displayed for the first time gas ranges equipped with single point ignition. The ignition system uses the stand-by pilot with safety valve, making the operation completely automatic. All burners, including the oven burner, light from a single top burner pilot. The oven thermostat, oven burner, and top burner pilot are standard.

Roper Corporation also featured an island display of five different types of automatic ignition systems. One system was the Roper-Bryant electric ignition for oven and broiler. Another was the Roper use of the Robertshaw electric ignition system for oven and broiler. Still another was a top burner electric ignition. Also contained in this display were two versions of single point ignition, termed the Roper-Bryant and Roper-Robertshaw systems.

An animated 1951 Roper "Town and Country" gas range came in for

to Page 60 →

EKCO PLANT EXPANSION

A $425,000 improvement program aimed at expanding housewares production at Ekco Products Company is now more than 50% completed, according to David Canmann, vice president and secretary, who indicated that work on plant and equipment should be completed before December 1.

NAME KEYNOTE SPEAKER FOR WINTER STOVE MEETING

Harold Boeschenstein, president of Owens-Corning Fiberglas Corporation, has been selected as the keynote speaker at the Winter Meeting of the Institute of Cooking and Heating Appliance Manufacturers, to be held at the Netherland Plaza Hotel, Cincinnati, December 4, 5 and 6.

The theme of Boeschenstein's speech will be "Business Risks in a Mobilized Economy." The speaker is a former vice chairman of the War Production Board and is "highly qualified to give authoritative information on the mobilization program," said the announcement.

HOME LAUNDRY MFRS. TO MEET IN CHICAGO, JANUARY 6

The annual meeting of the American Home Laundry Manufacturers Association will be held in the Terrace Casino of the Morrison Hotel, in Chicago, Saturday, January 6, just preceding the opening of the Winter Homefurnishings Market. The announcement was made by A. H. Noelke, executive secretary of AHLMA.

APEX PROMOTION TO INCLUDE MOVIE SHORTS, TV FILMS

Keeping pace with modern entertainment media, Apex Electrical Manufacturing Co. has prepared a special advertising program featuring movie shorts and television films. Thirteen film playlets in color and six 20-second television films are being made available to Apex dealers throughout the country.

Products featured on the films include Apex's line of washing machines, clothes dryers, ironers, dishwashers, sinks and disposal units, and automatic home laundry.

The program was prepared by Meldrum & Fewsmith, Inc., Cleveland advertising agency, under the direction of Frank S. Ryan, advertising manager for Apex.

TAPPAN LAUNCHES LARGE RANGE MERCHANDISING PROGRAM

Although present range orders on hand are more than enough to absorb the company's complete production output for the remainder of this year, The Tappan Stove Company has announced a full-scale fall merchandising program "unparalleled in the firm's 69-year history."

In announcing the program, P. I. Berno, director of merchandising, said: "We are going to follow the practice that has proved to be profitable in the past. During World War II, Tappan was the only gas range manufacturer to consistently carry out an advertising program in national magazines, and we plan to continue advertising now even in the face of pending material shortages."

REFRIGERATOR SALES CONTINUE AT HIGH LEVEL

Refrigerator sales by 15 firms reporting to the National Electrical Manufacturers Association amounted to 3,569,318 units for the first seven months of 1950, 46% ahead of the number sold during the same period of 1949.

July sales by the same firms totalled 507,029 units, 54% ahead of the same month last year, but 8% down from sales in June of this year, said the NEMA report.

GAS RANGE SHIPMENTS AT ALL-TIME HIGH IN AUGUST

Reports from manufacturers indicate that domestic gas range shipments during the month of August soared to an all-time high of 318,000 units, it was announced by the Gas Appliance Manufacturers Association. This is 20% greater than the previous high established in March of this year when the industry shipped 264,000 units.

Edward Martin, director of marketing and statistics for GAMA, said that during the first eight months of 1950, shipments totaled 1,902,900 units or 62.4% greater than during the same period of 1949, and double the average 1936-40 unit shipments.

Shipments of domestic gas ranges for the comparable seven-month period of 1950 were 1,584,900 units, an increase of 64.1% over the same period of 1949.

COOLERATOR REPORTS ELECTRIC RANGE SALES UP 247%

Reporting that Coolerator electric range sales for the 1950 fiscal year are 247% of last year, W. C. Conley, Jr., general sales manager for The Coolerator Company, announced the appointment of Frank H. Fisher as

the company's national range specialist.

Fisher has specialized in electric range activities since 1937, and most recently was associated with Hotpoint, Inc. as manager of the range division. He will head up an expanded range division and will administer the most extensive range program in Coolerator history, said Conley.

COOLERATOR APPOINTS HOME ECONOMICS DIRECTOR

Miss Nancy Jaeger has been appointed director of home economics for The Coolerator Company, it has been announced by W. C. Conley, Jr., general sales manager.

It was stated that Miss Jaeger, a graduate of Iowa State College with a B.S. in household equipment, will organize and manage Coolerator's newly created home economics division. This division has been blueprinted for extensive activity at the dealer level, particularly under the expanded Coolerator electric range program for 1951.

A new experimental kitchen and demonstration auditorium will be set up at the company's home office in Duluth, Minnesota, for research purposes, and the general home economics and dealer demonstration program will have been announced to Coolerator distributors and dealers before the first of November, said the report.

FREEZER SALES IN JULY REACH ALL-TIME RECORD

The sale of 76,699 home and farm freezers during July by 26 manufacturers reporting to the National Electrical Manufacturers Association set a new record for monthly sales and boosted the volume for the first seven months of 1950 ahead of the 1949 volume for the same period.

The July total was 45% higher than June sales of 52,825, previous all-time monthly high, and was 147% ahead of July, 1949, sales.

For the first seven months of this year, 332,055 freezers were sold by 26 to 29 firms reporting to NEMA. This compares with 313,957 for all of 1949 and 178,952 for the first seven months of that year.

HOME LAUNDRY EQUIPMENT SALES REMAIN AT HIGH LEVEL

Factory sales of household washers in August totalled 381,452 units compared to 282,261 in July, an increase of 35.1%, and were 17.8% higher than sales of 323,789 units in August, 1949, according to industry-wide figures announced by the American Home Laundry Manufacturers Association.

August was the fourth highest month of the industry's history in washer sales, surpassed only by September and October, 1948, with 433,919 and 382,400 units respectively, and March, 1950, when the total was 423,802 units.

Automatic tumbler dryers sold in August aggregated 32,318 units, an increase of 37% over 23,588 in July, and were 484.8% greater than 5,526 reported for August, 1949.

Ironer sales in August were 42,700 units, a gain of 70.1% over 25,100 in July, and 32.2% greater than 32,300 in August, 1949.

REFRIGERATION RESEARCH FOUNDATION MOVES OFFICES

According to a recent report, the executive committee of the Refrigeration Research Foundation has authorized the director's office moved to Colorado Springs, Colo., from Berkeley, Calif. It was said that the chief reason for the relocation is the desirability of a headquarters closer to the geographic center of the country for the purpose of bringing about great efficiency and more economic operation in travel time and operating expenses.

G-E RESEARCH LABORATORY OBSERVES 50TH ANNIVERSARY

The General Electric Research Laboratory celebrated its 50th anniversary during the week of October 9 with the formal dedication of its new home near Schenectady, New York.

Coincident with the anniversary celebration, the National Academy of Sciences held its autumn meeting at the laboratory from October 10 through 12. This was the first time in the Society's 88-year history that its sessions have been held at an industrial laboratory, said Dr. Detlev W. Bronk, Academy president.

QUINCY STOVE HEAD DIES

Robert B. Fischer, 61, president and general manager of Quincy Stove Manufacturing Co., died August 29. He had been on a leave of absence from his duties since June of this year.

TRANE EXECUTIVE DIES

Emil H. Erickson, 74, vice president and director of The Trane Company, manufacturers of equipment for air conditioning, died September 12 after a long illness.

SALES OF 'CP' GAS RANGES INCREASE 90% DURING 1950

A 90% increase in the sales of automatic ranges built to 'CP' standards during the first eight months of 1950, compared to the same period in 1949, has been revealed by the Gas Appliance Manufacturers Association. Total industry sales of all types of ranges during this period showed an increase of 62.4%, and July shipments of 'CP' ranges were 103% greater than last year.

NEW SALES APPOINTMENTS FOR TITANIUM PIGMENT

Election of Graham W. Corddry as vice president in charge of sales, Titanium Pigment Corporation, subsidiary of National Lead Company, has been announced by Joseph H. Reid, manager of National Lead's Titanium Division.

K. W. Ericson, formerly western sales manager, has been appointed general sales manager, succeeding Corddry; H. L. Jungmann will continue as assistant to the general sales manager.

John A. Lutz, formerly manager of the technical service department, is the new eastern sales manager, suc-

ceeding W. H. Woods who is now western sales manager, with headquarters in Chicago.

Earl W. Diener, formerly in charge of the New England territory, is now district sales manager for New York, New England and Pittsburgh areas; W. F. Malcolm is now in charge of the New England area, with headquarters in Boston.

Norman E. Olson, sales representative, is now district sales manager of the Chicago area and midwestern and southern states west of the Mississippi River, with headquarters in Chicago.

Fred R. Hodgson, sales representative, is now district sales manager of the Cleveland area and midwestern and southern states east of the Mississippi River, with headquarters in Cleveland.

James MacGuffie is now manager of the technical service department with headquarters in New York City.

E. G. Burling, Pacific Coast sales manager, and W. Schoonmaker, district sales manager of the Philadelphia area and southeastern states, will continue in their present positions.

18-POINT PROGRAM FOR PLANT MAINTENANCE CONFERENCE

An 18-point program of plant maintenance techniques has been set for discussion at the Plant Maintenance Conference to be held in Cleveland, Ohio, in January, it was announced by Clapp and Poliak, Inc., exposition management. The conference will take place during the first three days of the Plant Maintenance Show, January 15-18, at the Public Auditorium in Cleveland.

Four general sessions will be held for all visitors and eight sectional conferences for executives and engineers with specialized problems.

General conferences will start with a discussion of preventive maintenance. At this session, speakers will discuss inspection procedures and frequencies, records and reports, and training personnel for maintenance work. The group will then divide for four sectional meetings on maintenance of electrical equipment, maintenance of power plant and heating equipment, maintenance problems of the small plant, and selection and maintenance of lighting equipment.

On the second day, the general session will be devoted to organization and management for maintenance. Sectional conferences will then consider specialized maintenance for chemical plants, paper and paper product plants, metal working plants, etc.

On the third day, the American Society of Lubrication Engineers will conduct a panel on lubrication. Another general session, devoted to plant housekeeping, will take up painting and decorating, selection and upkeep of floors, and proper standards of sanitation.

The exposition, which was conducted for the first time in January of this year, is expected to be two to three times as large in 1951. On exhibition will be equipment and materials for air conditioning, heating, ventilating, lubricants and lubricating equipment, materials handling, product finishes, welding and gas cutting, instruments, meters, gauges, maintenance tools and supplies, training and safety, building materials and services, electrical equipment, etc.

LOCKER ASSOCIATIONS MERGE

The Frozen Food Locker Institute and the National Frozen Food Locker Association, Chicago, have merged to form the National Frozen Food Locker Institute, according to a recent report.

The new group will be composed of locker manufacturers, suppliers, contractors, operators, wholesale paper jobbers and frozen food packers in the United States and Canada. Affairs of the organization will be carried on by the present executive secretary of NFFLA, S. T. Warrington, who will serve until a permanent appointment is made.

ALBERT RAYMOND DIES, SMOKE PREVENTION ASSN. DIRECTOR

Albert A. Raymond, vice president and director of the Air Pollution and Smoke Prevention Association of America, died August 30. At the time of his death, he also was serving as chairman of the Association's Public Relations and Publication Committee.

BINKS NEW MILWAUKEE OFFICE

Binks Manufacturing Company, makers of spray guns and industrial finishing equipment, has announced

H. J. DUENO

the opening of a new and centrally located office at 2041 West State St., Milwaukee, Wis.

The new office is approximately three times as large as the company's former Milwaukee office, and includes a display room where industrial spray finishing equipment is exhibited.

H. J. Dueno, manager of the new office, has charge of sales for Binks in Wisconsin, Michigan peninsula, Minnesota, North and South Dakota, and the northern parts of Iowa and Illinois.

WESTERN STOVE SALE APPTS.

Lloyd C. Ginn, general sales manager, Western Stove Company, Culver City, California, has announced the appointment of George A. Schlatter as director of merchandising and John F. Hennessey as sales promotion manager. It was indicated that Schlatter will direct the training of the Western-Holly gas range sales organizations, and that Hennessey

to Page 56 →

Program for paint production clubs meeting

28th annual meeting of paint and varnish production clubs in Chicago

THE 28th annual meeting of the Federation of Paint and Varnish Production Clubs will be held in Chicago, November 9, 10 and 11, with headquarters at the Congress Hotel. (Registration opens Wednesday afternoon, November 8.)

Speakers on the opening program, Thursday morning, will include: A. T. Montanye, president of the Federation; P. M. DeLeeuw, president of the Chicago Club; and J. F. Battley, president, National Paint, Varnish and Lacquer Association.

The Paint Industries Show will open Thursday morning and will close on Saturday. The annual banquet has been scheduled for Friday evening.

TECHNICAL PROGRAM

Thursday Morning, November 9

The Effect of Zinc Oxide on Architectural White Enamels ..... Western New York Club

Accelerated Yellowing Tests on White Enamels .... Baltimore Club

Kinetics of Formation and Properties of Drying Oils from Diglycerol ..... Northwestern Club

Thursday Afternoon, November 9

Water in Oil Emulsion Varnishes and Paints .. Dr. Wouter Bosch, North Dakota Agricultural College

Some New Developments in Drying Oil and Varnish Technology .. .. T. F. Bradley, (delivering the Joseph J. Mattiello Lecture)

A Theoretical and Statistical Study of Sward Rocker Hardness Determinations of Paint Films ..... Oil & Colour Chemists' Association

Evaluation of Bodying Agents in Gloss Enamels ..... Golden Gate Club

Friday Morning, November 10

The Hiding Power of Synthetic Iron Oxides ..... Toronto Club

A Torquemeter for Measuring Power to Plant Mixers ..... D. E. Mack and V. W. Uhl, Lehigh University

At What Price Does an Expensive Paint Become a Good Bargain? ..... G. Dechaux, Federation of Technical Assns. of Paint Industries of Europe

Friday Afternoon, November 10

A Method for the Evaluation of Alkyd Resins for Stoving Finishes ..... Birmingham Club

Standard Methods of Testing and Evaluating "Deep Tone" Flat Wall Paints ..... New York Club

Report of the Federation Research Program ..... P. O. Blackmore, chairman, Educational Committee; Dr. W. O. Lundberg, University of Minnesota; Dr. J. S. Long, chairman, Research Sub-Committee of Educational Committee; F. Scofield, National Paint, Varnish & Lacquer Association; Dr. G. C. Williams, professor of Chemical Engineering, University of Louisville; L. P. Larson, C.D.I.C. Club; Dr. George Selden, Cleveland Club.

Saturday Morning, November 11

Plant Production Problems (round table discussions)

Raw Materials Handling

Processing—includes three papers on "Dispersions," "Fineness of Grind," and "Dispersion Studies"

Packaging and Shipping

Adjournment

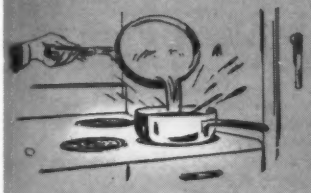
Exhibitors

Paul O. Abbé, Inc.
Advance Solvents & Chemical Corp.
C. M. Ambrose Co.
American Cyanamid Co.
Anderson-Prichard Oil Corp.
Archer-Daniels-Midland Co.
Atlas Electric Devices Co.
Atlas Powder Company
Union Carbide & Carbon Corp., Bakelite Division
Baker Castor Oil Co.
Binney & Smith Co.
Burt Machine Company
Theodore Cornelius
Cuno Engineering Co.
J. H. Day Company
Epworth Manufacturing Co.
Falk & Company
Ferro Chemical Corporation
General Electric Company, Chemical Department
Geuder, Paeschke & Frey Co.
Goodyear Tire & Rubber Co., Inc.
Great Western Manufacturing Co.
Hercules Filter Corp.
Hercules Powder Company
Inland Steel Container Corp.
Spencer Kellog & Sons, Inc.
Kent Machine Works, Inc.
J. J. Lehmann Co.
Mineral Pigments Corp.
Morehouse Industries
The Neville Company
Newport Industries, Inc.
Nuodex Products Co., Inc.
Patterson Foundry & Machine Co.
Libbey-Owens-Ford Glass Co., Plaskon Division
Interchemical Corporation, R-B-H Dispersions Division
Reichhold Chemicals, Inc.
Rohm & Haas Company, Resinous Products Division
Charles Ross & Son Co.
Ross & Rowe, Inc.
National Paint, Varnish and Lacquer Assn., Scientific Section
Shell Oil Company
South Florida Test Service
Sparkler Manufacturing Co.
Arthur C. Trask Co.
Troy Engineer & Machine Co.
U. S. Industrial Chemicals, Inc.
U. S. Stoneware Co.
Upressit Products Corp.
Witco Chemical Company

A GOOD START

...a Stronq Finish!

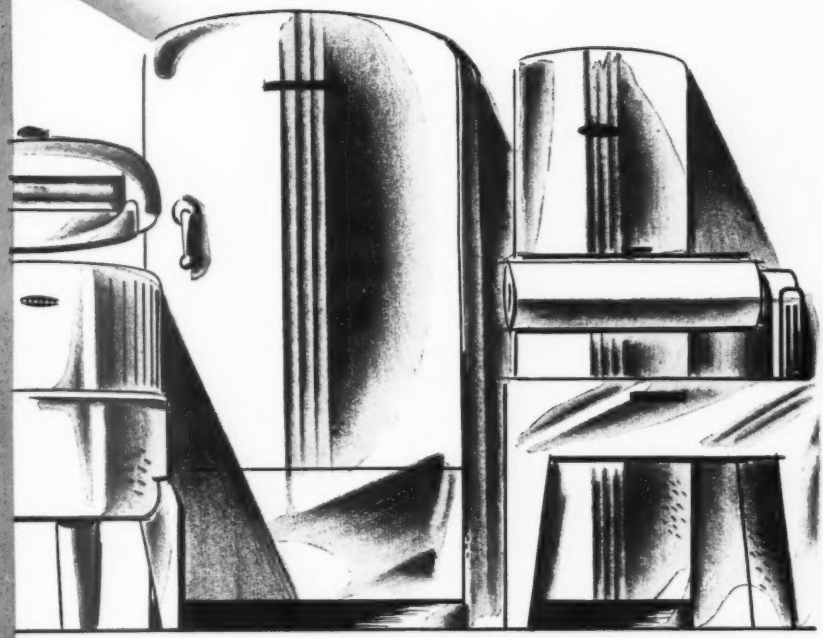
TOUGH AND MARPROOF
Kemclad formulations include special ingredients to protect finish against marring, chipping or scratching.



HOT GREASE? NO HARM DONE!
Even hot grease won't damage Kemclad's gleaming white finish!

STAYS WHITE AND STAIN-FREE!
Kemclad Finishes aren't affected by food acids, weak alkalies, alcohols or other common household chemicals.

CLEANS EASILY . . . SAFELY!
Kemclad's smooth surface cleans easily with damp cloth, but withstands strong detergents safely.



Appliance sales often *start* with the *finish*. They often end there, too, unless the finish has the punishment resisting, white-for-life beauty made possible by the newest developments in synthetic resin finishes!

Kemclad* Appliance Finishes are designed for one purpose only —to adapt these qualities accurately to the specific needs, designwise, productionwise and saleswise, of appliance manufacture. They provide the high qualities of permanence and protection against abuse that are expected and demanded by today's buyers.

They offer distinct production advantages, too, in cutting down rejects. Greater hardness combined with greater flexibility enables minor defects to be easily rubbed or "dinged" out after baking, with Kemclad Finishes. At the same time, extremely high solid content with low viscosity makes possible better protection at lower cost per finished unit.

Sherwin-Williams Technical Service Engineers will be glad to advise what advantages Kemclad Finishing Systems may be able to offer in your production setup. Write today for further information. The Sherwin-Williams Co., Industrial Division, Cleveland 1, Ohio.

*®

SHERWIN-WILLIAMS KEMCLAD

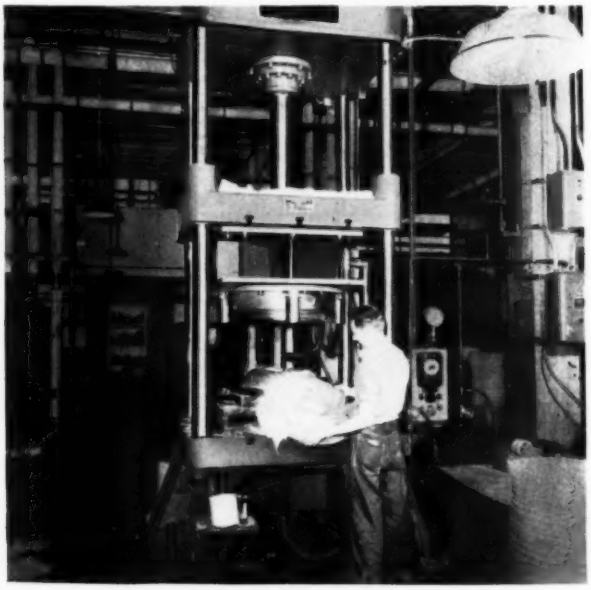
APPLIANCE FINISHES

ANOTHER PRODUCT OF SHERWIN-WILLIAMS INDUSTRIAL RESEARCH

finish SUGGESTION BOX

Hydraulic press with "pressure curing cycle"

THIS press, designed for service requiring a "pressure curing cycle," is shown in operation in the plant of a manufacturer of major home appliances. The photo shows an operator removing from the dies a liner for an automatic washing machine which has been finish-formed and cured.



A single electric control provides rapid approach to a pre-set slow-down position, slow-or-pressing speed to dwell position, dwell for curing, and rapid return to up position. The complete cycle is automatic. Inching control is also provided through a selector switch.

To provide maximum versatility, the following adjustments are provided: location of slow-down and upstroke limit switch cams; variation of slow or pressing speed down to 1" per minute; variation of pressure point at which timer is energized; and variaton of timer cycle between 2 seconds and 20 minutes.

***Source for further information on this new equipment may be obtained by writing* finish.**

Control of heat and air contamination in plants

(Continued from Page 22)

As to combatting the effect of the furnace temperature upon general working conditions, liberal use is being made of exhausting units to expell heat spillage from the shop atmosphere. Spillage from the ends of continuous furnaces is usually controlled by means of air screens or seals, accompanied with a certain amount of exhausting either to the outside or to recuperator use.

Some layouts provide for a separate cooling chamber at the discharge end of the furnace. Heat expelled from the chamber not only assists in promoting the safe handling of the ware, but also prevents the increase of shop temperature. Such chambers also serve as a baffle between the furnace and adjacent areas.

From the preceding it can be seen that many different methods have been put into use to improve the air conditioning of enameling plants. The benefits derived from such installations are usually twofold in that they not only promote better working conditions but they also assist in the production of better ware.

Credit for information used in this article is extended by the author to the following: L. W. Lammiman, The DeVilbiss Company; H. S. Kline, Frigidaire Division of General Motors Corporation; A. J. Boland, Albert J. Boland Company; G. R. Sylvester, Sylvester & Company; Russell Frank, Ferro Enamel Corporation; and from articles published in the trade press.

Adapted for finish *from a report, "Air Conditioning in Enameling Plants" by the Author, developed under the sponsorship of the Process Development Committee of the Porcelain Enamel Institute of which E. L. Seasholtz, of J. M. Seasholtz & Sons, Inc., is chairman.*

HORTON STOCK BOUGHT BY ROMOS ENTERPRISES

All outstanding common and preferred stock of Horton Manufacturing Co., Fort Wayne (Indiana) manufacturers of washing machines, ironers and clothes driers, has been purchased by Romos Enterprises, a Cincinnati investment group, according to an announcement released by A. E. Askerburg, Horton president.

All present personnel will continue with the company, according to S. O. Rose, who heads Romos Enterprises along with P. L. Moskowitz.

A reorganized board of directors elected Rose president of Horton, and Moskowitz vice president. Askerburg was named executive vice president and general manager.

The board also elected the following other officers: M. A. Naus, plant engineer; C. H. Kortum, chief engineer; C. W. Jordan, director of purchases; Joseph A. Hoodin, treasurer; Fred Weiland, secretary; A. G. Nelson, comptroller and assistant treasurer; and S. L. Betz, works manager and assistant secretary.

Designed for Service

And good and lengthy service was given by this 1900 Geismobile.

Here's the big difference in what we have to offer—service, the best Porcelain Enamel Finish available, and good design! If you are troubled with any design problems at all, ask us immediately to help you with our complete facilities. For over thirty-five years our designers have contributed to the practical design of Porcelain Enamel parts and have earned real money for the suppliers of products which required lasting beauty.

Stamping companies, for instance, often have a problem in designing a product which is practical for enameling, and have come to us for help. We feel certain that if you investigate, you will find that our experience can also serve *you*.

Write us on your company letterhead, or simply use the handy coupon below; enclose a rough sketch of the design problem that is facing your company, and see how our design service can work for you. We will also welcome your request for a free copy of the instructive book, "Design and Fabrication of Metal Parts for Porcelain Enameling". There is no obligation.

VITREOUS STEEL PRODUCTS COMPANY
Box 1791, Cleveland 5, Ohio

☐ Enclosed is a rough sketch of our design problem. Please rush us your suggestions.

☐ Send us the FREE 20 page book, "Design and Fabrication of Metal Parts for Porcelain Enameling".

Name ..... *Title* .....

Company .....

Address .....

City ..... *Zone* ..... *State* .....

Product Manufactured .....

Remember, too, that through the use of Porcelain Enamel, it's a lot easier to land the big sales—for only Porcelain Enamel gives years of time erasing, matchless beauty. Plan for the lifetime finish.

VITREOUS STEEL PRODUCTS CO.

BOX 1791, CLEVELAND 5, OHIO ***(Factory at Nappanee, Ind.)***

89%
More than ~~85%~~ of all modern PORCELAIN ENAMELING FURNACES have been

Built by Ferro

Just fo he

A-B Stoves, Inc.
Abendroth Bros. Co.
Allen Mfg. Co.
AllianceWare, Inc., Alliance, Ohio
AllianceWare, Inc., Colton, Calif.
Altorfer Bros. Co.
American Central Mfg. Co.
American Radiator Co.
American Stove Co., Cleveland, Ohio
American Stove Co., Lorain, Ohio
American Stove Co., St. Louis, Mo.
Apex Electrical Mfg. Co.
Armstrong Products Corp.

Baltimore Porcelain Steel Corp.
Barridon Oil Burner Corp.
Barrows Porcelain Enamel Co.
Beaver Enameling Co.
Bellevue Porcelain Enameling Co.
Belmont Stamping & Enameling Co.
Benjamin Electric Mfg. Co.
Bettinger Enamel Co.
Briggs Mfg. Co.
Bright Light Reflector Co., Inc.

California Metal Enameling Co.
Caloric Stove Corp.
Canton Stamping & Enameling Co.
Chambers Corp.
Chattanooga Stamping & Enameling Co.
Cleveland Porcelain Enameling Company
Clyde Porcelain Steel Corp.
Conlon-Moore Corp.
Cribben & Sexton Co.

Davidson Enamel Products Co.
Detroit-Michigan Stove Co.

Ed. Friedrich, Inc.
Electromaster Div., Philco Corp.
Enamel Products Co.
Enamelstrip Corp.
Erie Enameling Co.
Esso Standard Oil Co.
Estate Stove Co.

Federal Enameling & Stamping Co.
Federal Radio & Telegraph Co.
Ferro Enameling Co., Oakland, Calif.
Fletcher Enamel Co.
Florence Stove Co., Gardner, Mass.
Florence Stove Co., Kankakee, Ill.
Florence Stove Co., Lewisburg, Tenn.
Floyd-Wells Co.
Fowler Mfg. Co.
Frigidaire Div., General Motors Corp.

Gaffers & Sattler Co.
General Electric Co., Erie, Pa.
General Electric Co., Schenectady, N. Y.
General Porcelain Enamel & Mfg. Co.
General Steel Barrel Co.
Geuder, Paeschke & Frey Co.
Gibson Refrigerator Corp., Greenville, Mich.
Gibson Refrigerator Corp., Belding, Mich.
Glascote Products, Inc.
Globe American Corp.
Goodrich Electric Co.
Jas. Graham Mfg. Co.
Grand Industries, Inc.

Heintz Mfg. Co.
S. D. Hicks & Son Co.
C. V. Hill & Co.
Hotpoint, Inc.
Houston Porcelain Enamel Co.
Humphreys Mfg. Co.
Hussmann-Ligonier Co.

Ice Cooling Appliance Corp.
Independence Stove & Furnace Co.
Industrial Enameling Div.,
Industrial Electric, Inc.
Inca Metal Products Co.
Ingram-Richardson Mfg. Co.
International Harvester Co.

Jones Metal Products Co.

Kalamazoo Stove & Furnace Co.
Keasbey & Mattison Co.
Kelvinator Div., Nash-Kelvinator Corp.
Kuljian Corp.

Landers, Frary & Clark
Leonard & Baker Co.
Lindemann & Hoverson Co.
Lisk Mfg. Co.

Manchester Porcelain Enamel Corp.
Maytag Co.
McCray Refrigerator Co.
Midwest Mfg. Co., Div. Admiral Corp.
Moore Enameling & Mfg. Co.
Mt. Vernon Furnace & Mfg. Co.
Mullins Mfg. Corp.
Murray Corp. of America
Murray Mfg. Co.

Nashville Corp.
National Enameling & Stamping Co.
Newark Stove Co.
Norge Div., Borg-Warner Corp.
Muskegon, Mich.
Norge Div., Borg-Warner Corp.
Effingham, Ill.
Norge Div., Borg-Warner Corp.
Herrin, Ill.
Norris Stamping & Mfg. Co.

Ohio Foundry Co.
O'Keefe & Merritt Co.

Peerless Enamel Products Co.
Perfection Stove Co.
Pfaudler Co., Elyria, Ohio
Pfaudler Co., Rochester, N. Y.
Philco Corp.
Porcelain Metals Corp.
Porcelain Steel Corp.
Portland Stove Foundry Co.
Prentiss-Waber Products Company
Quality Porcelain Enamel & Mfg. Co.
Quincy Vitreous Enameling Co.

Reading Vitreous Enameling & Fdry.
Rehoboth Porcelain Enamel Co.
Republic Stamping & Enameling Co.
Roberts & Mander Stove Co.
Roesch Enamel Range Co.
Geo. D. Roper Corp.
Round Oak Stove Co.

Samuel Stamping & Enameling Co.
Seaporcel Porcelain Metals, Inc.
Seeger Refrigerator Co.
Servel, Inc.
Smoot-Holman Co.
Southern Household Products Co.
Southwestern Porcelain Steel Corp.
Standard Enameling Co.
Standard Porcelain Enameling Co.
Stove Works, Inc.
Strong Mfg. Co.

Tappan Stove Co.
Tennessee Enamel Mfg. Co.
Tennessee Stove Works
Texas Engineering & Mfg. Co.
Texlite, Inc.
A. F. Thompson Mfg. Co., Huntington
A. F. Thompson Mfg. Co., Tyler, Tex.
Toledo Porcelain Enamel Products Co.
Truscon Steel Co.
Tyler Heater Co.
Tyler Fixture Co., Niles, Mich.
Tyler Fixture Co., Waxahachie, Texas

United States Stamping Co.

Vitreous Steel Products Co., Cleveland
Vitreous Steel Products Co., Nappanee

Warren Co.
H. Waterman & Bro. Co.
Welbilt Stove Co.
Western Stove Co., Culver City, Calif.
Western Stove Co., McGregor, Texas
Westinghouse Electric Corp.
Wrought Iron Range Co.

Youngstown Pressed Steel Div.,
Mullins Mfg. Co.

LATIN AMERICA

Aceros Esmaltados S. A.
Arthur Martin Argentina S. A.
C. A. P. E. A.
C. A. T. I. T. A. (Electric)
Cia. Industrial Del Norte
S/A Comercio & Industria Souza Noschese
Companhia Distribuidora Gera Brasileira
Companhia Geral de Industrias
F. Daroch & Cia.
Delgado Hermanos S. A.
E. M. E. R. A. R.
Esmaltes Mexicanos S. A.
Fabrica de Enlozados S. A.
Fabrica de Ferro Esmaltado Silex

Ferriloza S
Ferrosmal
Hime S/A
Industrial
Industrias
Industrias
Industria
INFEL-
Industrias
Jose Pasc
Juan B. Is
A. Macchi
Manufact
Manufact
Manufact
Pacheco,
Privea S.
Productos
Luis M. P
Siam Di T
Talleres I
Terriza &
Troqueles

Alliance
Beatty Br
A. Belang
Graham
Canadian
Canadian
Crane St
Empire S
Enamel &
Enterpris
Fairgriev
Findlays,
Frigidair
General
General
Guelph S
Gurney
Kelvinat
La Fond
Moffats,
Porcelai
Racine &
Roy Ind
Ruddy F
Stamped
Sunshin

City Eng
C. J. Fu
S. A. Ge
General
Union E
Vitreous

Anglo E
Benjami
Birtley
Cannon
Chew &
R. & A.

the RECORD...

Ferriloza S. A.
Ferrosmalt S. A.
Hime S/A-Industria & Comércio
Industrial Jones de Mexico
Industrias Mabe S. A.
Industrias Martins Ferreira S. A.
Industria Nacional de Ferro Esmaltado-INFEL—Ltda.
Industrias Reunidas S. A.
Jose Pascucci y Cia.
Juan B. Istilart, Ltda.
A. Macchi & Cía.
Manufacturas Corona S. A.
Manufacturera General Electric S. A.
Manufacturera de Metales S. A.
Pacheco, Ltda.
Privea S. R. L.
Productos Metalicos Esmaltados S. A.
Luis M. Priori
Siam Di Tella Ltda.
Talleres León
Terriza & Cía.
Troqueles y Esmaltes S. A.

CANADA

Alliance Ware Limited
Beatty Bros., Ltd.
A. Belanger, Ltd.
Graham Bell Enamelling, Ltd.
Canadian General Electric Co.
Canadian Westinghouse Co., Ltd.
Crane Steelware, Ltd.
Empire Stove & Furnace Co.
Enamel & Heating Products
Enterprise Foundry Co., Ltd.
Fairgrieve & Son
Findlays, Ltd.
Frigidaire Products of Canada, Ltd.
General Steel Wares Ltd., Toronto
General Steel Wares Ltd., London
Guelph Stove Co., Ltd.
Gurney Industries, Ltd.
Kelvinator of Canada, Ltd.
La Fonderie de L'Islet, Ltee.
Moffats, Limited
Porcelain & Metal Products
Racine & Racine Mfg. Co.
Roy Industries, Ltd.
Ruddy Freeborn Co., Ltd.
Stamped & Enamelled Ware, Ltd.
Sunshine Waterloo Co., Ltd.

SOUTH AFRICA

City Engineering Works, Ltd.
C. J. Fuchs, Limited
S. A. General Electric Co., Ltd.
General Motors South African, Ltd.
Union Enamel Company
Vitreous Enamelling Corporation

GREAT BRITAIN

Anglo Enamelware
Benjamin Electric Co., Ltd.
Birtley Company
Cannon Iron Foundry
Chew & Commander, Ltd.
R. & A. G. Crossland, Ltd.
Electrolux, Ltd.
English Electric Co.
Ernest Stevens, Ltd.
S. Flavel & Co.
Frigidaire, Ltd.
General Electric Co.
Grangemouth Iron Co.
J. A. Jordan & Sons
Jury Holloware, Ltd.
R. & A. Main, Ltd.
Parkinson Stove Co.
Pressed Steel Co.
Richmonds Gas Stove Co.
Royal Ordnance Factory
Rubery Owen & Co., Ltd.
Simplex Electric Co.
L. Sterns & Co., Ltd.
Stoves, Ltd.
Trans-Heat, Ltd.
Wallis & Co., Ltd.
Wilson & Mathieson, Ltd.

EUROPE

Aktiebolag M. Lundgrens Gjuteri
Austria Email Ditmar
Gerard Becuwe
Ditta Siltal
Ferinando Zoppas & Figli
J. Gardom, Ltd.
A. B. Gustausberg Fabriker
Husqvarna Vaponfabrik
J. Kaliba & Sohn
Kovosmalt
Moneta SP
P. D. Phillis
Siemens-Schuckertwerke A. G.
Smalterie Lombarde

AUSTRALASIA

Alexander Harvey & Sons, Ltd.
John C. W. Bridge & Co. Pty., Ltd.
W. T. Carmichael, Limited
Charles Hope Limited
Chown Bros. Pty., Ltd.
Claude Neon (Aust.), Ltd.
Electricity Meter Mfg. Co., Ltd.
E. S. & F. Ferrier
General Motors (N. Z.), Ltd.
General Motors Holden, Ltd.
Hallstroms Pty., Ltd.
A. C. Healing
Harris Hutchinson Pty., Ltd.
Kelvinator (Aust.), Ltd.
Malleys, Limited
McIlwraith Ind. Pty., Ltd.
Metters K. F. B., Ltd.
Parkinson Stove Co. (Aust.), Ltd.
Porcelain Enamelling Ind. Pty., Ltd.
Radiation (N. Z.), Ltd.
Scott Bros. Pty., Ltd.
H. E. Shacklock, Ltd.
A. Simpson & Son
Specialised Engineering Prod., Ltd.
United Metal Ind. Pty., Ltd.
Vitro Holloware Co.

MISCELLANEOUS

Ahmad Hassan Said & Fils, Egypt
Delta Trading Company, Egypt
Erani, India
R. H. Ingham, Ltd., India

In the Porcelain Enameling Field ONLY . . . and for whom furnaces (box, continuous, straight-through—gas, oil, electric—) or complete plants have been or are being built.

Let the Leaders Be YOUR Guide!

Thinking of adding a furnace? Of increasing the size of one of your existing units? Have a combustion problem? Or, are widely varying temperatures in the firing zone troubling you? Regardless of what your particular furnace headache is, Ferro can help you. Their installation record quickly shows a technical background and practical experience that is relied upon . . . for new furnaces engineered to fit specific production and fuel requirements . . . or for existing facilities revamped for faster, more economical production. Like to talk with one of our Engineers? We'll show you how to save money!

FERRO ENAMEL CORPORATION

CLEVELAND 5, OHIO

→ *from Page 49*

will be assigned to developing customer relations plans and promotion programs.

Ginn stated that both he and Henry Honer, president of Western Stove, believe that sales promotion, sales training and merchandising programs for dealers are seriously needed "even under Korean conditions as they exist today." It was stressed that such important programs must be started and completely developed during this present period.

MINNESOTA MINING EXPANSION IN CLEVELAND, ATLANTIC CITY

Plans for the construction of two adjoining buildings for warehouses and sales office space in Atlanta, Georgia, has been announced by C. P. Pesek, vice president in charge of engineering, Minnesota Mining & Manufacturing Co. The construction of a new $250,000 branch warehouse and office building in Cleveland, Ohio, was also announced.

Products of the company include pressure-sensitive adhesive tapes, coated abrasives, adhesives, reflective products, roofing granules, color pigments, industrial coatings and chemicals.

TAM APPOINTMENT

Dominic Laurie, formerly in the Ceramic Research Laboratories of

Titanium Alloy Manufacturing Division of National Lead Company, has been transferred to the Ceramic Production Department. Laurie is a ceramic engineer graduate of Alfred University, and has been with TAM since July, 1947.

YALE & TOWNE CHAIRMAN DIES

Joseph A. Horne, chairman of the board, The Yale & Towne Manufacturing Co., died October 3 in Stamford, Conn. He was in his 82nd year. During his 58 years of association with the company, Horne worked in close collaboration for three decades with Henry R. Towne, co-founder with Linus Yale, Jr. of the firm in 1868.

"BATTLE OF THE FUELS"

The Anthracite Institute, with the aid of $2,600,000, is out to establish the conviction that "America's best fuel buy is anthracite," and to curb further conversion to gas and oil. With the American Petroleum Institute spending about $1,300,000 to advance its members interests this year, and the Oil-Heat Institute financing a $250,000 promotion of its own, the

FEWER REJECTS

USING FAHRALLOY BURNING TOOLS!

The ideal design of Fahralloy burning tools provides for minimum bearing area and proper suspension for work to be conveyed through furnaces.
These salient features plus elimination of excess weight and ability to withstand repeated thermal stresses make Fahralloy burning tools "a must" in your plant. Standardize with Fahralloy now! Send for Catalog 48 and check standard patterns against your requirements. Should "your tool" not be found, consult our engineers for an ideal design.

THE FAHRALLOY COMPANY
150th & Lexington Ave., Harvey, Ill.

Guaranteed Results
in the
Pickle Room
with
Specification Materials
and
Experienced Service

MANUFACTURERS OF LEPCO PRODUCTS

Suppliers to Porcelain Enameling Plants
CLEANERS • NEUTRALIZERS
DRAWING COMPOUNDS

V. B. PUNDERSON COMPANY
402 SWETLAND BUILDING CLEVELAND 15, OHIO

LP-gas and LP-gas appliance industries are rolling into action in their first campaign, following NEMA's recent warning to members: "LP-gas sales have skyrocketed 1,244 per cent in the past ten years and now are costing (electric) utilities over $1,000,000 annually in lost power revenue."

MONROE SANDER APPT.

At a meeting of the board of directors of The Monroe Sander Corporation, manufacturers of industrial finishes, synthetics and chemicals, Harold R. Tanney was elected vice president in charge of production. Formerly assistant treasurer, Tanney will be in complete charge of the manufacture of all company products for consumer and government use, it was stated.

DAVIS HEADS ENTERPRISE CLUB

H. Braith Davis, chairman of the board, John W. Masury and Sons, Inc., has been elected president of the Enterprise Club of Baltimore, an association of key executives and sales manager.

INDUSTRIAL "OSCAR" TO ARMCO

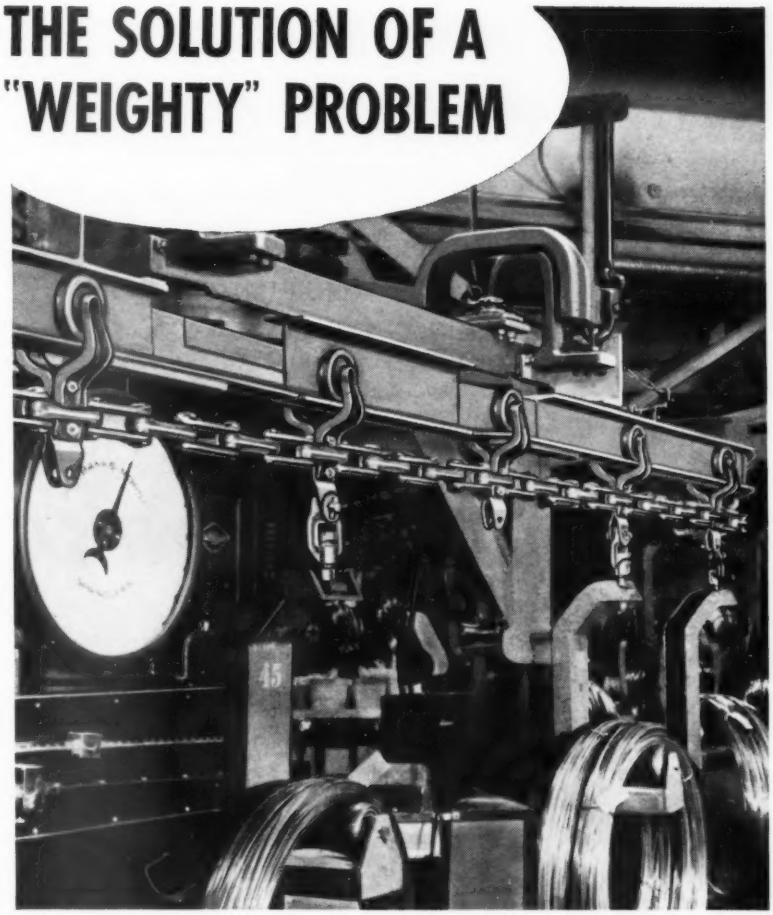
In the final ratings of the board of judges for the Financial World Survey of Annual Reports, Armco Steel Corporation was judged as having the best annual report of the steel industry. A bronze "Oscar of Industry" trophy is scheduled for presentation to Charles R. Hook, chairman of Armco, at the Annual Awards Banquet in the Grand Ballroom of Hotel Statler, New York, October 30.

NEW OFFICE FOR ACME STEEL

Construction has begun on Acme Steel Company's new $125,000 office building in Riverdale, Illinois, just 150 feet outside the gates of their main plant. The building is expected to be completed before January 1, 1951.

Carl J. Sharp, president, announced that the building will serve a welcoming function for the plant, with visitor-centered activities — reception,

THE SOLUTION OF A "WEIGHTY" PROBLEM



Here is another example showing how Webb cooperates with industry to lighten labor's load. Automatic weighing mechanism coupled with Webb conveyors eliminates costly hand trucking of heavy wire coils to scales — and to storage.

WEBB ENGINEERING — PLUS MODERN CONVEYOR EQUIPMENT CAN SOLVE YOUR MOST COMPLICATED MATERIALS HANDLING PROBLEM

JERVIS B. WEBB COMPANY

8913 ALPINE AVE., DETROIT 4, MICHIGAN

BRANCH FACTORIES:
JERVIS B. WEBB CO. OF CALIFORNIA
LOS ANGELES 23
JERVIS B. WEBB CO. OF CANADA LTD.
HAMILTON, ONT.

DISTRICT OFFICES:
ATLANTA 6 • BOSTON 59 • BUFFALO 21
CHICAGO 49 • CINCINNATI 2 • CLEVELAND 13
DALLAS 4 • GRAND RAPIDS 7 • MILWAUKEE 11
MINNEAPOLIS 15 • NEW YORK 16 • PHILADELPHIA
PITTSBURGH 16 • ST. LOUIS 7 • SAN FRANCISCO 3

MANUFACTURERS OF OVERHEAD AND FLOOR TYPE CONVEYORS

purchasing and employment — all combined under one roof.

SURFACE CHEMICALS EXPANSION

New research and development laboratories and a complete manufacturing plant have been put into operation at McKees Rock, Pennsylvania, by Surface Chemicals, Inc. The opening of the new facilities brings together a staff of qualified research and production men whose objectives are to develop and manufacture new and improved organic protective coatings, said the report.

Charles H. Groff, technical director, said that Surface Chemicals is equipped to develop and produce "tailored" coatings for all types of usual and unusual applications.

CONSULTANT FOR MASURY

Richard W. Webster, for many years with Valspar Varnish Laboratories, has joined John W. Masury & Son, Inc. as a consultant. The announcement was made by Masury's new president, Frank P. Connolly, who formerly was vice president and general sales manager of Valentine & Co.

BURENS NAMED LOCKE PRESIDENT

George E. Burens, acting general manager since May of this year, has

been elected president, general manager and a director of Locke, Inc., succeeding R. G. Bellezza, who resigned to accept another position.

Locke is a manufacturer and distributor of insulators and other ceramic products.

RESISTANCE WELDER ASSN. MOVES INTO NEW OFFICES

The office of the Resistance Welder Manufacturers Association has been moved from 505 Arch Street, Philadelphia, to new quarters at 1900 Arch Street. It was stated that the new quarters were extensively remodeled and modernized prior to their occupancy.

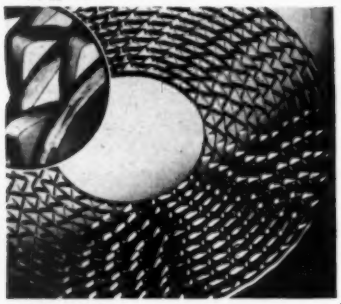
SMOKE PREVENTION ASSN. ANNUAL MEETING, MAY 6-10

The 1951 convention of the Air Pollution and Smoke Prevention Association of America will be held in Roanoke, Virginia, May 6-10, according to Charles W. Gruber, Association president.

TAKE THE PRAYING OUT OF *SPRAYING!*

Get a consistently fine iron-free finish with FRANTZ Permanent Magnet FERROFILTERS

REMOVE iron at the last possible moment from your enamel, and from the compressed air by installing Permanent Magnet FERROFILTERS. Put one of these compact, inexpensive units between the enamel tank and the gun hose, and another on the air line at the booth, and see how rejections and reworks caused by iron spots go down, and profits go up.

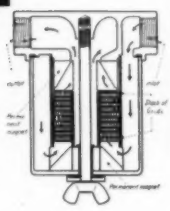


A FERROFILTER GRID
Magnified inset shows collected particles on grid edges.

The **FERROFILTER** represents the most advanced method of iron separation ever developed, and is fundamentally different from the conventional type of filter and separator. Its patented design consists essentially of layers of soft steel grids, placed between and magnetized by two powerful Alnico permanent magnets. The cross section shows how the **FERROFILTER** works. The fluid enters the space around the magnets, then goes upward through the magnetized grids and out through the upper magnet. Although offering very little resistance to the flow, the hundreds of feet of strongly magnetized grid edges comb and re-comb the flowing material, splitting the flow stream into thin elements and forcing each particle of iron to pass very close to them. As a result all ferrous particles are magnetically strained out permitting only iron-free finish to leave your air gun.

FRANTZ FERROFILTER

- Catches ferrous particles as fine as one micron
- No replacement parts to buy
- Full flow and non-clogging
- Easily attached
- All parts easily accessible and quickly cleaned



Think of what this can mean in clean, bright finishes and economical operation!

FRANTZ FERROFILTERS are in successful use in hundreds of Ceramic plants throughout the world. They are doing their job and doing it well in small plants, in large plants, and in great plants.

Write us for complete information today!

S. G. FRANTZ CO., INC.

P.O. BOX 1138 • TRENTON 6, N.J.

Authorized Representatives for the Enameling Industry

FERRO ENAMEL CORPORATION
4150 East 56th Street Cleveland 5, Ohio

CHICAGO VITREOUS ENAMEL PRODUCT CO.
1425 So. 55th Court Cicero 50, Ill.

BINKS BOARD CHAIRMAN DIES

J. F. (John) Roche, chairman of the board, Binks Manufacturing Co., Chicago, died October 15, at the age of 76. He had been chairman of the board since April, 1949.

Prior to joining the Binks organization in 1929 as executive vice president and member of the board, Mr. Roche served in executive capacities with Montana Power Co., Hotpoint, Inc., and Apex Electric Distributing Co.

In 1936, he was elected president of Binks, a position he held until 1949 when he became chairman of the board. His son, Burke B. Roche, was named president at that time.

Since Mr. Roche joined Binks, the company grew from a small firm to one internationally known for its spray finishing equipment, cooling towers, and industrial spray nozzles.

During recent years he also devoted much time to the Advisory Board, National Emergency Council, National Association of Manufacturers, Illinois Manufacturers Association, and other business and civic groups.

WICKWIRE SPENCER SALES EXEC.

Richard H. Frizzell has been appointed sales manager of the struc-

tural products department of the Wickwire Spencer Steel Division of The Colorado Fuel and Iron Corporation, it was announced by H. C. Allington, general manager of sales. In 1933, prior to the merger with Colorado Fuel & Iron, Frizzell joined the then Wickwire Spencer Steel Company. His headquarters are at the division's offices in Buffalo, N. Y.

TINNERMAN TO BUILD NEW RESEARCH LABORATORY

Tinnerman Products, Inc., which formally opened its new $2,000,000 plant in Cleveland in September, will soon begin construction on a new research laboratory adjacent to the office section of the new factory.

Announcement of the plans was made at the plant dedication by George A. Tinnerman, vice president and general manager. Mr. Tinnerman stated that the new laboratory will cost approximately $200,000 and will facilitate the company's "already extensive work in new development and engineering of its Speed Nut brand of fasteners."

Sales are running at an alltime high, Mr. Tinnerman said, and "it is likely that we shall have to expand still further in the near future."

Something NEW and BETTER in Zircons!

Orefraction Zircon

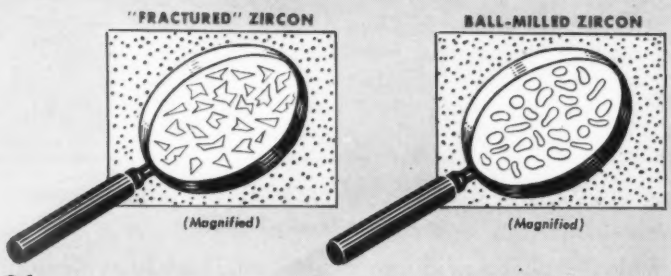
FROM GRANULAR DOWN TO 400 MESH PARTICLE SIZES

NO CONTAMINATION AND NO FREE SILICA BECAUSE IT IS NOT GROUND!

Orefraction Zircon is purity "fractured" to desired mesh sizes by an exclusive method that absolutely eliminates ball-mill contamination and has the added advantage of producing particles that are irregular in size and shape. These angular particles compact more densely when used in ceramic bodies and electrical insulating cements to give you superior finished products.

Compare the magnified particles of "fractured" Zircon over ordinary ball-milled Zircon and you will see the difference.

See the DIFFERENCE...



Check THESE ADVANTAGES

✓ GREATER THERMAL SHOCK RESISTANCE and HIGHER ELECTRICAL VALUES
✓ GREATER MECHANICAL STRENGTH in CERAMIC BODIES
✓ GREATER TAP-DENSITY FOR DENSER BODIES
✓ HIGHER THERMAL CONDUCTIVITY

THEN WRITE FOR WORKING SAMPLES TODAY ON YOUR LETTERHEAD

Orefraction Inc.

7426 THOMAS STREET • PITTSBURGH 8, PA.
PROMPT DELIVERY ON OREFRACTION ZIRCONS AND RUTILES

Some highlights of GAMA exhibition

(Continued from Page 44)

its full share of attention. The completely mechanized model does everything but talk. Its every action does a selling job. The cooking top (griddle and all) tilts up and forward, doors silently open and close, broilers and drawers glide in and out, illuminated messages act as silent salesmen, broiler burners glow cheerily, and handsome full color translites pitch in to complete the story of features and results. This range display is a potent sales promotion weapon that does a beautiful job of upgrading sales.

Midget heating plant for apartments

With the Midget HydroTherm boiler manufactured by Hook and Ackerman, Inc., New York, a 3-5 room apartment can be supplied with gas heat at minimum cost and can be regulated so that each individual tenant has the amount of heat he desires for his personal individual requirements, company officials explained. According to John F. Baier, vice president of the company, the new product was designed especially for apartment use and does not need to use floor space since the unit's compactness makes it possible to suspend it from the ceiling or to place it on a shelf. The "Midget" boiler has an input rating of only 45,000 Btu's, and, though fully automatic, requires no electrical connection.

Clock control for gas range top burners

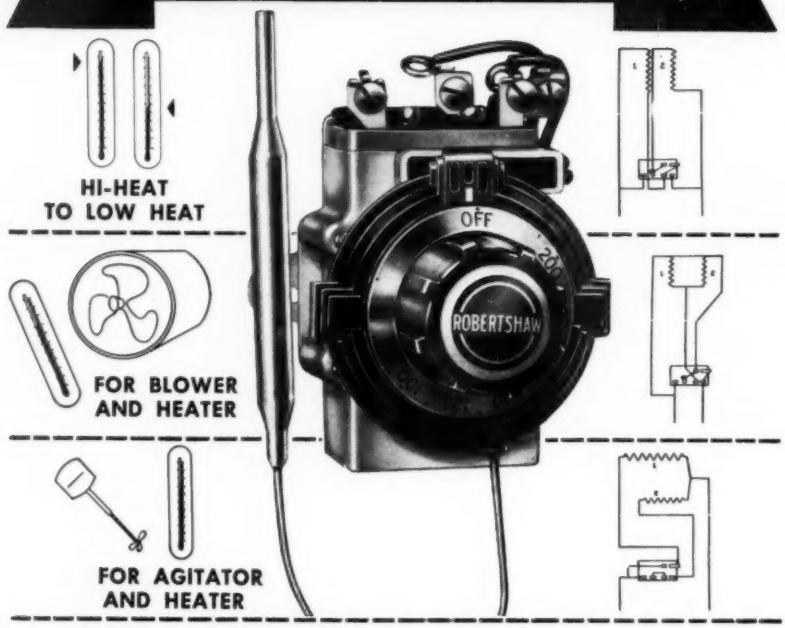
According to Lloyd C. Ginn, general sales manager, Western Stove Company, Culver City, California, "Our company's new range has a completely new automatic feature which we do not believe has ever been incorporated in any range, electrical or gas, and that is that the top burners may be automatically operated by a clock control. With this new development the housewife can bring a pot of stew to boil, turn the valve on simmer, set the automatic clock, and then do anything else she likes. She simply forgets it. When the stew is done, the clock automatically shuts off the gas. . ."

Range tops in color were also a feature of this company's exhibit. One special range included both a radio and a vanity mirror.

Gas control generates its own electricity

A self powered control system for gas heating, called "Powerpile", was introduced. "The Powerpile is unique because it generates its own electricity from the heat of the pilot flame", it was pointed out. "This electricity is used to run the thermostat and the gas valve. Because it does make its own power, gas heating plants using this control can be installed in areas where electricity is not available. And because the control system is independent of other sources of power, heating will not be interrupted be-

A 2 CIRCUIT THERMOSTAT
FOR A THOUSAND USES —



ROBERTSHAW MODEL F-1 Thermostat
(Single Pole Double Throw)

When two heating elements are used, high heat element is automatically cut in when thermostat calls for heat. When set temperature is reached, main contacts are automatically broken and low, or holding temperature element is cut in to function until drop in temperature again calls for heat. *Write for catalog.*

In Home and Industry, EVERYTHING'S UNDER CONTROL
Robertshaw THERMOSTAT DIVISION
ROBERTSHAW-FULTON CONTROLS COMPANY YOUNGWOOD, PENNSYLVANIA

cause of a failure of commercially supplied electricity."

New automatic incinerator

A new automatic home incinerator was introduced by Bowser, Inc., Cairo, Illinois. It was described by company officials as a unit featuring an automatic ignition and burner gas cut-off for the two bushel capacity "Incinor", which can be used with all types of gases (natural, manufactured, mixed, and liquefied petroleum) at both high and low altitudes.

J. G. Dierkes, general manager, Bowser, said "Simply place your charge of garbage or rubbish in your Incinor, set the indicator hand on the Time-O-Gas dial to any time desired up to two hours. The burner will automatically light and incineration commences immediately. Time-O-Gas will shut off the gas at the end of the pre-determined time setting automatically."

"Small kitchen" planning

Although there is reported to be a general trend in new construction towards large kitchens, in many homes only a limited amount of space is available for this important room. The problem of fitting it with the basic essentials needed for proper plannng was met by a 10′ x 10′ kitchen exhibited by the St. Charles Manufacturing Co., of St. Charles, Illinois.

Servel "gas carnival" sets utilities pattern

"Step right this way, folks! See the marvel of the modern age—GAS, the wonder flame!"

Servel's gay, colorful exhibit provided stimulating ideas for utility celebrations at local level. With all the crowd-stopping appeal of the three-ring circus and the Broadway revue, the "Gas Carnival" on the stage of the Atlantic City Auditorium gave AGA members new suggestions for the use of modern showmanship in telling the story of gas. It was one of the highlights of the Exposition.

Gas vs. electric range contest

Two similar demonstrations were presented in the booths of Harper-Wyman Company, Chicago, Ill., and Caloric Stove Corporation, Topton, Pa., to show the comparative operating features and characteristics of gas and electric ranges.

The latest in gas ranges were installed side by side with the latest model electric ranges, and tests conducted with visible recording instruments to show comparative heating and cooling time and other operating characteristics considered to be important competitive sales points.

The background of an elaborate exhibit for Owens-Corning Fiberglas Corp., Toledo, Ohio, traced the relationship between the use of Fiberglas as a material and the transportation, manufacture, distribution and use (industrial and domestic) of gas as a fuel. In each instance the type of insulation used for each purpose was displayed, and in the case of major appliances, such as the refrigerator, water heater, and range, the actual application to the product was demonstrated.

In this weathering room time passes thirty times faster than normal.

Where INSULATION is Food for Thought

Looks like an oven full of cakes, but it isn't. It is a weathering chamber testing Fiberglas* Insulation. In this chamber, wet and dry, hot and cold conditions are produced with such rapidity that thirty years of weathering go by in twelve months.

This torture room is but one of many test devices used at the Fiberglas Research Laboratories . . . where products made of fibers of glass are proved. It is here that Fiberglas Insulation, product of Owens-Corning Fiberglas Corporation, is certified as fit for fabrication by many manufacturers . . . fit to meet and exceed standards . . . fit to help America live better.

The home appliance industry was among the first major users of Fiberglas Insulations, and its increasing use of them is gratifying evidence of the quality and reliability our testing has built into these insulations. The end result, of course, is the well-established acceptance by the consuming public of Fiberglas Insulation as a quality feature of quality appliances. Owens-Corning Fiberglas Corporation, Dept. 109-K-, Toledo 1, Ohio.

OWENS-CORNING FIBERGLAS

*Fiberglas is the trade-mark (Reg. U. S. Pat. Off.) of Owens-Corning Fiberglas Corporation for products made of or with fibers of glass.

FIBERGLAS IS IN YOUR LIFE...FOR GOOD!

New Supplies and Equipment

K-10. Separator removes iron from liquids flowing in large pipes

A new pressure-tight non-electric magnetic iron from liquids, slurries and slips, flowing in pipelines that vary in diameter from 6″ to 20″, is now available. It is said to prevent tramp iron damage to such processing equipment as pumps, grinders, refiners, etc.

This "pressure hump" is a flow-interrupting unit. This means that strategically placed baffles direct material flow 30° from the normal straight line so that two stainless steel plate-type magnets installed on opposite faces of the hump can set up a magnetic barrier in tandem; what one misses the other catches. This "pressure hump" is said to perform satisfactorily with materials flowing at volumes from 50 cfm to 250 cfm, depending upon consistency. Pressures up to 45 psi may be safely employed, it is stated.

K-11. New laboratory oven conserves space in average-sized laboratory

A new laboratory oven has been developed to fit the expanded needs to testing laboratories in industry. The size and shape of the new oven is said to fit better into the space facilities of the average laboratory. The application of cross-flow convection heat with extra air volume speeds up pre-heat time, provides for better penetration of products in the work chamber and reduces time for heat recovery after new loads.

The oven has a temperature range up to 850° F. It provides for maximum heat control accuracy and work chamber uniformity. Swinging doors permit location of the oven where less head room is available. The laboratory oven is available in either direct gas-fired or electric models.

More Information

For more information on new supplies, equipment and literature reviewed here, fill out the order form on this page.

K-12. New model die filing machine

A new, improved model die filing machine is now available. Modifications incorporated in the new model affect the chucking arrangement for files, saws and stones, and an improved lubrication system.

Chief utility of the machine is for machine filing of intricate die contours, eliminating the need for hand filing.

The machine operates on 110 volt, 60-cycle alternating current. Standard operating speed is 375 to 500 strokes per minute. Speeds as low as 250 strokes per minute and as high as 650 strokes per minute can be achieved.

K-13. Micro-bellows pump

A pulsation type pump which delivers a constant rate over long periods has been developed. The pump has no packing gland or stuffing box, eliminating the danger of contamination of product by lubricants.

Designed primarily for laboratory scale pumping of materials which are liquid at room temperature but can be adapted to pump low boiling liquids and viscous materials.

K-14. New adhesive for fastening labels to appliance surfaces

In addition to its original use for fastening instruction labels on circuit diagrams to electrolytic tin plate, terne plate and other metal surfaces, a new paper-to-metal adhesive now is claimed to hold effectively to enameled or painted surfaces on home appliances.

Another new use for the adhesive has been found in applying paper labels over the gloss printed areas of folding cartons or paper packages.

This semi-fluid, white, latex-resin emulsion adhesive weighs 8.4 lbs. per gallon, is dilutable with water, and can be applied by hand brushing, gumming machines, or spray guns to adhere porous materials to many non-porous surfaces. The adhesive is said to be fast setting, holding porous materials and labels immediately on contact with a permanent bond that will not shrink, crystallize or allow assemblies to delaminate. In table model gumming machines, it is said

FINISH
360 N. Michigan Ave.
Chicago 1, Illinois

Please forward to me at once information on the new supplies and equipment and new industrial literature as enumerated below:

No._____ **No.**_____ **No.**_____ **No.**_____

No._____ **No.**_____ **No.**_____ **No.**_____

Name _____ **Title** _____

Company _____

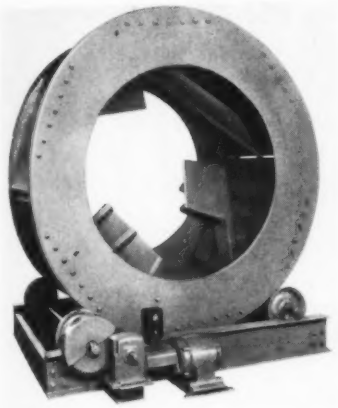
Company Address _____

City _____ **Zone**____ **State** _____

to operate without foaming or build-up on the rollers.

A laboratory report, listing complete technical data and test reports, together with suggested uses, is available.

K-15. New "fatigue" tester for loaded containers



A fatigue tester for the testing of loaded paperboard, fiberboard and wooden shipping cartons and boxes is now available. This new machine has a vertically mounted, revolving drum, consisting of a hexagonal-shaped testing chamber supported by two flanged steel heads mounted on an I-beam base.

The body sections of the machine are made of 3″ thick dressed fir on which are mounted specially designed eccentric oak tumbling baffles or hazards. The unit is motor-driven, and has an automatic counting device which indicates the number of times a carton drops from one baffle to the next.

The tester is available in two models, one for handling loaded containers up to 20″ by 20″ and not exceeding 250 lbs. gross, and the other for handling loaded containers having a length up to 72″, and weighing up to 1000 lbs. gross.

Established test procedures are said to indicate: (1) the ability of a container to withstand various shocks and impact stresses simulating those which may be expected in handling and shipping, (2) the ability of packing and carton designs to protect the contents when subject to such shocks and stresses, and (3) comparison of different designs of containers of the same size and carrying the same load.

K-16. New abrasion testing unit

A new abrasion testing instrument is designed to evaluate the resistance of surfaces to rubbing abrasion. Its range of application includes tests of painted, lacquered, electroplated surfaces and plastic coated materials, also textile fabrics ranging from sheer silks to heavy upholstery, leather, rubber, and linoleum.

The rotary rub-wear action is the result of dual abrading wheels rubbing the specimen from the center outward and from the outside toward the center causing the abrasion lines to cross each other like the letter "x". The abrasion marks are in the form of two arcs crisscrossing each other and covering an area of approximately 10 square centimeters which is satisfactory for rating the material.

An important exclusive feature of the instrument is that the wheels traverse a complete 360° circle revealing abrasion resistance on the same specimen at all angles relative to the weave or grain direction.

K-17. New panel instruments

A line of modernistic panel instruments in three different models is now available to give manufacturers a complete line of both conventional and modernistic design.

The models all have easy to read scales which add to greater readability under varied lighting conditions. The etched faces extend across the entire front of the meter and are covered with unbreakable plastic.

NEW LITERATURE

111. New power press handbook "just off the press"

A new 700-page power press handbook, containing 450 illustrations, has just been published. The handbook contains sections on: easy methods of computing press jobs; how to select the proper type of press; useful engineering tables; die illustrations; glossary of terms used in the pressed metal industry. It has been described as "the most complete handbook produced exclusively for the pressed metal working industry."

112. Technical data on springs for home appliances

A valuable handbook of technical data on springs is now available through *finish*.

The contents include: information for determining spring weight; design formulation procedure for helical springs, compression springs and round wire torsion springs; load deflection tables; instructions for specifying compression, extension and torsion springs; and other useful tables for the appliance engineer and purchasing executive.

113. Properties of 100 adhesives described in new catalog

Properties of more than 100 industrial adhesives, coatings and sealers—including strippable coatings for protecting metal finishes—are described in a new catalog.

The 32-page booklet announces that more than 1000 formulas are available, and offers research help for manufacturers in selecting the right product for their jobs.

114. Bulletin on corrosion-proof cements

A new bulletin describes a line of corrosion-proof cements, including resin, sulfur, silicate and asphaltic cements. Information on each cement is compiled in handy chart form which is helpful in selecting the correct cement for specific applications.

PROTECT THOSE VALUABLE FINISHED PRODUCTS With the Right Box or Crate

★

NAILED OR HINGED CORNER

PLYWOOD CRAVENEER WIREBOUND

CLEATED CORRUGATED

BOXES OR CRATES

★

Consult with our packing engineers on product protection — Our designing and testing laboratory is at your service, without obligation.

CHICAGO MILL AND LUMBER COMPANY

33 South Clark Street Chicago 3, Illinois

Plants at: Helena, Ark. • Greenville, Miss. • Tallulah, La. • Rockmart, Ga. • Chicago, Ill.

How we solved our design and packaging problems

testing plan at American Stove reduces percentage of damaged ranges from over 10% to less than 2%—repair parts packaging simplified

by Russell F. Schoenbeck • CHIEF PRODUCT ENGINEER, AMERICAN STOVE COMPANY, ST. LOUIS, MISSOURI

IN the years before World War II, American Stove Company had no definite program for determining the amount of damage their ranges received in transit. Tests used to establish crating and packaging methods were crude and were not, for the most part, correlated with actual shipping hazards. Reliance was placed on occasional reports from dealers or from salesmen to learn if the products were arriving safely.

When range manufacturing was resumed after the war, the company felt a very definite need for a program that could indicate how much damage was occurring, what parts of the range were weak, and whether or not the packaging methods were satisfactory. It was recognized that the first need was to determine accurately what per cent of damage was occurring. Occasional reports that might say "Everything is O.K. Keep them coming," or "We're getting a helluva lot of damaged ranges" were inadequate.

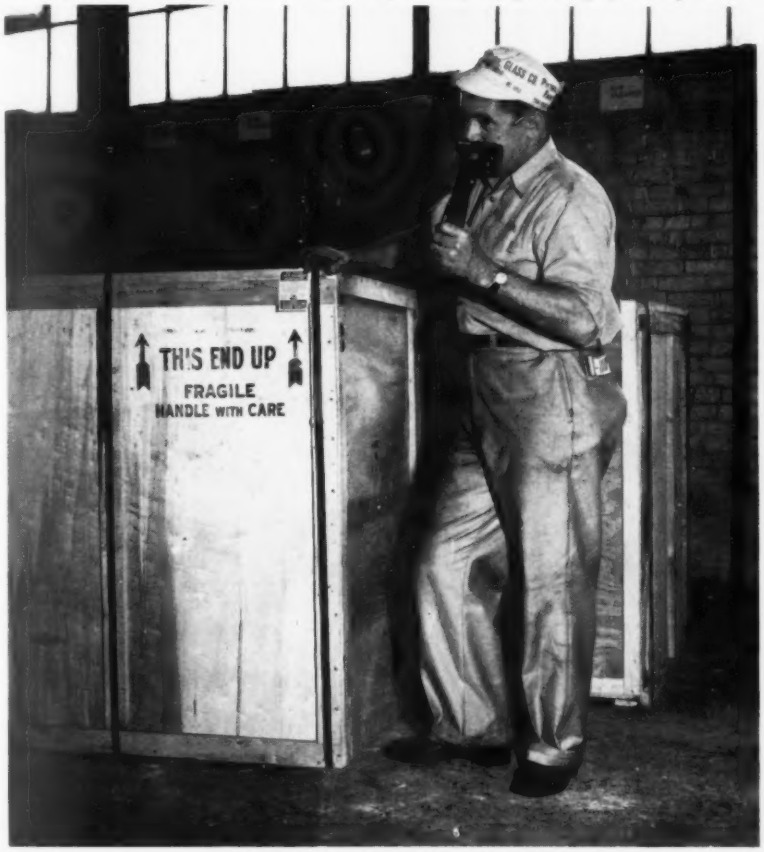
The pressing need was to learn what *percentage* of ranges were damaged and where they were damaged. Only then could an intelligent program be undertaken to find the most satisfactory and the most economical package, and to correct any defects in the design of the range. Only then could the twin evils of over-packaging and under-packaging be avoided.

Standard report forms devised

With this idea in mind, the engineers devised three different forms, two of which are shown on the following page. One is a warehouse receiving report which was sent to warehouses and large dealers throughout the country. Warehousemen were asked to fill out one of these reports for each carload of ranges received. On these special reports are indicated the condition of the banding and bracing, the condition of the ranges, and the condition of the crates. There is also space for the warehouseman to indicate *exactly where* the damage was located, and to make any pertinent remarks. This record was correlated with another record maintained at the factory, which told what route the car followed in reaching its destination.

When the warehouse reports were returned to the factory, compilations were made on another report (Figure 1) to show the extent and location of damage in all cars sent out.

An employee in the American Stove export department is shown attaching a Safe Transit Label to a crated Magic Chef range ready for shipment.



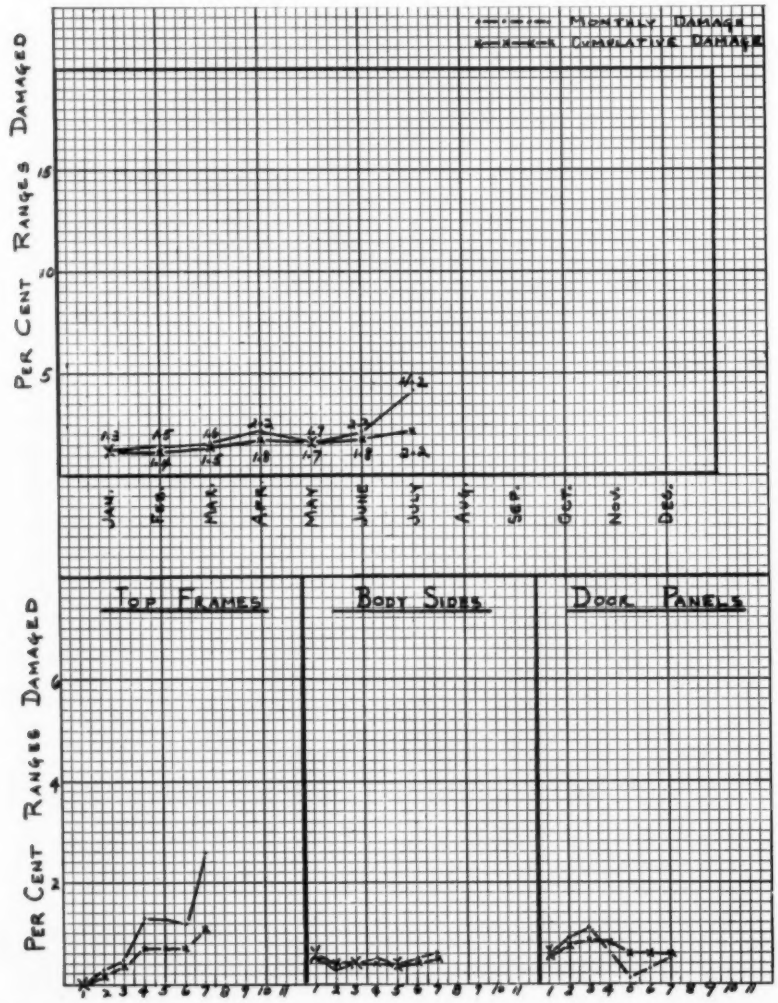
MODEL No._____ MONTH_____

DATE REPT. RECEIVED	DIVISION	No. RANGES IN CAR	No. RANGES DAMAGED	TOP FRAME									BODY SIDE						OVEN, BROILER				LOWER UTILITY				COMPART. DR.					GRATE TRAY	BASE
				U.L.R.	L.L.R.	U.R.R.	L.R.R.	FLUE	REAR RAIL	FRONT RAIL	L.F.	R.F.	GRATE TR.	MANIFOLD	LEFT T.F.	LEFT T.R.	LEFT L.F.	LEFT L.R.	RIGHT T.F.	RIGHT T.R.	RIGHT L.F.	RIGHT L.R.	T.L.	T.R.	L.L.	L.R.	HANDLE	T.L.	T.R.	L.L.	L.R.	HANDLE	L. HINGE	HANDLE		

Figure 1 — When warehouse reports were returned to the factory, compilations were made to show the extent and location of damage in all cars sent out. The form used to maintain this record is shown above.

Figure 2 is a chart used to portray graphically the damage to various basic parts of the range. These methods proved a satisfactory way of collecting the information desired. Within a short time, figures were available to point out the range models that were giving trouble, and the parts that were receiving most damage. It was also clear what warehouses were receiving the greater percentage of damaged ware, and what railroads were handling cars most roughly. This was the type of information needed—the basis for a sensible attack on the packaging problem.

Figure 2 — This chart was used to portray graphically the damage occurring during shipment to various basic parts of the ranges.



During the months that this information was being collected, American Stove Company had brought out a completely new line of post-war Magic Chef ranges. These ranges were radically different from any ranges which the company had made previously. They had a different base, a new one-piece top, a new all-welded oven unit construction. Thus, the ranges presented a completely different shipping problem from any that the company had experienced.

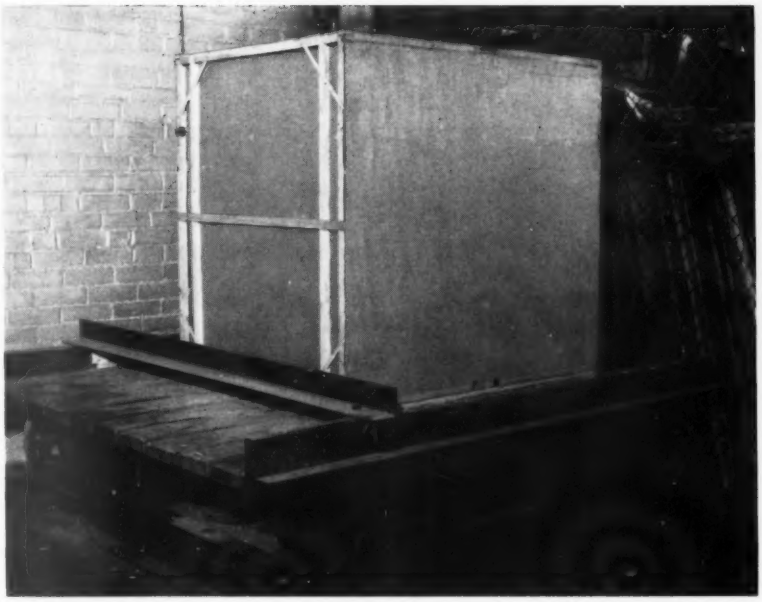
The first ranges were tested *before* a Conbur incline tester and a vibration machine *(recommended for Safe Transit testing)* were installed in the plant. Only unsatisfactory, desultory methods of pre-shipment testing were used, and actual shipments soon proved that the crate was unsatisfactory and that the range design was faulty in regard to shipability. The warehouse reports quickly indicated that considerable damage was occurring — considerably more than had been experienced on older models. Body sides were being damaged on the lower front corners. The oven unit was bending across the base, allowing the entire range to deform. The top rear supports were not rigid enough, so that the top was shifting with resulting damage. Nuts and bolts were vibrating loose all over the range. The situation became quite serious. In one month, more than 10% of the ranges shipped arrived with one or more damaged panels! Warehouses were filled with ranges which could not be sold until repair parts arrived. Obviously, something had to be done, and done quickly, to end this situation.

Pre-testing equipment installed

During this period, the incline impact tester and the vibrating machine, recommended by the National Safe Transit Committee, were set up in the plant. Tests on those machines soon confirmed what the ware-

house reports had already indicated. Thus, the nature of the problem—the exact location of trouble spots—was clearly shown.

The package engineer worked with design engineers to modify the crate and the range, so that they could stand the shipping strains. The base was decreased in width; the oven unit greatly strengthened, and the top rear support stiffened. Lock nuts were used in many places on the range. A wood support block was placed directly under the front frame; and the range was anchored firmly to the crate by band iron brackets. These brackets tended to prevent the excessive vibration which was loosening all the bolts; and so most of the trouble passed. Percentage of damaged ranges fell from over 10% to less than 2%. Ranges were received in good condition.



An experimental shipping crate is shown on the vibration platform, ready for testing the packaged product.

Safe Transit test procedures used effectively

During their tests, the engineers had been trying to correlate the testing devices with actual shipping hazards, but were not having any signal success. Should the vibrator be set to give .5G, 1G, 1.5G, or 2G? Should the ranges on the incline tester be released from 4′, 5′, or 6′? While they were trying to correlate their tests with *known* shipping hazards indicated by reports from impact registers, the Safe Transit Committee's Procedure 1 *(testing procedure for packaged products weighing from 100 to 1000 lbs.)* was published. This was exactly the type of information that was required. Here was a set of tests severe enough to insure that only properly designed and properly packaged parts could pass—but not so severe as to necessitate excessively costly crates. This test procedure was of inestimable value in helping to bring the excessive damage under control.

The Safe Transit test procedure and testing devices are continuing to prove of great value and to pay for themselves over and over. New types of packaging materials—tape, cushioning agents, crates—are all tested and determined satisfactory or unsatisfactory. New ideas for range design are automatically tested on these machines before being accepted for use on ranges, so that the old-time guess work has been discarded. Now, American Stove Company *knows* that when ranges and parts go into the field they will arrive safely, because they have stood the test!

Money saved on repair-parts packaging

Procedure 1-A (for packaged products weighing less than 100 lbs.) was equally valuable to the company, though for slightly different reasons. These Safe Transit tests were applied to all repair-parts packages. The tests indicated that practically all of the parts were over-packed; so, cheaper methods could be used while still packaging the parts safely. Two types of packs were found defective; so, new packages were used to replace them. In this way, the company de-

A crated range receives the incline impact test. All faces of the crate are subjected to impact according to Safe Transit procedures.

veloped inexpensive packages, but packages capable of withstanding normal shipping hazards.

These tests have proved of considerable value to American Stove Company. They revealed defects quickly, and so ended the need for having thousands of potentially damaged ranges in the field before the defects were revealed. They helped design engineers and crating engineers produce a product that reached the consumer in proper condition.

Munitions Board packaging committee meets

THE Munitions Board Packaging Industry Advisory Committee held its second meeting at the Pentagon, in Washington, D. C., September 8. The meeting was largely given over to a discussion of methods of operation of the Committee whereby all phases of the packaging industry would receive adequate representation and specialized problems might be best handled.

It was concluded that since the membership had been selected from the various phases of the packaging industry, due to their general knowledge of packaging equipment and materials, that the sub-committee structure of the Committee should follow the steps of packaging procedure.

On this basis, sub-committees were formed and chairmen appointed as follows: *Preservation*, M. K. Miller, General Motors Corporation; *Packaging*, Dr. C. E. Waring, Davison Chemical Company; *Identification*, John K. Mount, Insurance Company of North America; *Packing*, P. O. Vogt, General Electric Company; *Testing*, Edward Dahill, Association of American Railroads; and *Training*, J. D. Malcolmson, Robert Gair Company, Inc.

The chairmen of sub-committees have been authorized to draw upon the main committee, or from related committees or industrial organizations, for their membership. In this way adequate coverage of any phase of the industry is possible for the handling of specialized problems. It is assumed, however, that the majority of packaging problems will deal with broad aspects which will cover several phases of the packaging industry.

The Packaging Division of the Munitions Board will function as a clearing house for problems of industry, as well as governmental agencies. The Packaging Division also will monitor packaging projects being developed by military and civilian organizations and associations in the interest of preventing duplication of effort and making completed studies of projects available in a central office for those having need of such information.

Methods of obtaining personnel qualified in packaging in the event of an emergency for use in that capacity, rather than in the fields where this experience would not be utilized, were also discussed.

WIREBOUND BOXES and CRATES
WOODEN BOXES and CRATES
CORRUGATED FIBRE BOXES
BEVERAGE CASES
STARCH TRAYS
PALLETS

Nearly a century of experience has resulted in the design and construction of shipping containers which give maximum strength and protection.

SUPERSTRONG boxes and crates - wirebound, wooden and corrugated - incorporate special features which provide increased efficiency and protection at a reduced overall cost.

Your product will receive individual attention, so that a SUPERSTRONG container may be custom built to its particular specifications. A SUPERSTRONG representative will call when you request to make a thorough analysis of your shipping requirements.

RATHBORNE, HAIR AND RIDGWAY BOX CO.
1440 WEST 21st PLACE • CHICAGO 8, ILLINOIS

A group was appointed to explore the possibility of simplifying packaging instructions in connection with government procurement of supplies and equipment. The operational means for establishing liaison with other divisions concerned with materials, resources, distribution, material requirements, and other engaged in fields allied with packaging, were explained.

SIPMHE packaging, materials handling exposition draws 6000 men to Philadelphia

AN attendance of 6000 was recorded at the 5th annual Industrial Packaging and Materials Handling Exposition held in Philadelphia's Convention Hall, October 10, 11 and 12. This year's attendance was 20% higher than at last year's show held in Detroit, said C. J. Carney, managing director, Society of Industrial Packaging & Materials Handling Engineers, sponsors of the Exposition.

In addition, some 1000 packaging and materials handling engineers attended the "Short Course" on Packaging and Materials Handling which was conducted jointly by SIPMHE and Temple University's Community College.

Trend in cushioning materials

In his address presented at the "Short Course," Herbert M. Lapidus, supervisor of the preservation and packaging division, Aviation Supply Office, Philadelphia, brought out a number of facts pertinent to the use of "Cushioning Materials," including "trends in the cushioning materials field today."

Lapidus stated that, "First, there is a trend toward reducing application time. Some materials, although initially cheap, require considerable labor expenditure in application time. There is increased demand for precut, pre-fabricated and molded materials.

"Second, there is an increasing demand for materials which are capable of absorbing and damping out shock in less space.

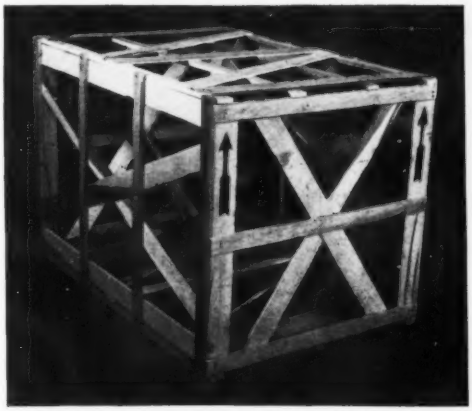
"Third, *there is a trend toward the establishment of performance standards on an industry-wide basis. An example of this is the job being done by the National Safe Transit Committee*, under the chairmanship of R. F. Bisbee, of Westinghouse, for the major home appliance and allied metal products industries. This approach has won industry-wide acclaim. If continued, a lot of guess work, a lot of waste, a lot of overselling . . . will disappear from the cushioning material field."

Handling crated water heaters

In his "short course" talk on "Application of Modern Mechanized Handling Principles to the Transportation Field," Albert V. Blatz, packaging and materials handling engineer, A. O. Smith Corporation, Milwaukee, discussed in part of his address

TIGHT CORNERS
with
B-G HINGED CRATES

The bracing strength and rigidity of the Bigelow-Garvey exclusive tight-corner design makes it possible for our Hinged Crates to withstand shocks, stresses and abuse that would be disastrous to ordinary collapsible crates.



A typical Bigelow-Garvey Tight Corner Hinged Crate designed for shipping a porcelain enameled range.

B-G Hinged Crates are designed for quick assembly, with completely collapsible mat and predrilled nail holes.
Three-way corner construction produces an unusually rigid and strong crate. Corners are held securely by 14 gauge wires.

Over 27 years experience — designing and manufacturing crates for shipping appliances and other products for the home — stoves, washers, bathtubs, sinks, furnaces, space heaters, water heaters, and power tools, etc.

OUR CRATES ARE BUILT TO PASS THE TESTS OF THE NATIONAL SAFE TRANSIT COMMITTEE

Bring your shipping problems to us.
Also: Box Shooks • Pallets • Pallet Boxes

BIGELOW-GARVEY LUMBER CO.
General Office and Laboratory
320 West Huron Street • Chicago 10, Ill.
Mills: Arkansas • Georgia • Wisconsin • Minnesota • Illinois

the handling of water heaters built at their Kankakee plant.

"We handle our crated water heaters 1 to 4 at a time, without pallets," stated Blatz. Continuing, he stated "we use a special fingerlift attachment for lift trucks, with the fingers all pivoted on a shaft. They are on about 2½" centers.

"We run one of these lift trucks up to a group of crated heaters which are to be moved. The fingers striking slats are pushed back; the others enter the open spaces — not to exceed 1½ so that they cannot touch the water heaters no matter where they may enter the crates, since cleats are ¾" square. This, plus the thickness of the slats, never less than 5/32", prevents fingers from projecting more than ⅝" beyond the cleats. All properly designed crates must have a full 1" minimum cleat clearance. The operator then raises the mast or carriage, to which carriage the forks are normally attached.

"The rising fingers come against a cleat or the end member of the top of the crate or the top cleat. The crate then rises with the rising fingers. The operator tilts the mast backward, and the lower portion of the crates rests against the large apron of the fingerlift attachment. Except for the usual raising and tilting of the mast, the entire operation is automatic.

"Positioning the heaters in a freight car or a storage stack is just the reverse — the mast is tilted forward to vertical position and the load lowered. Our special side shift attachment permits 'pin point' spotting without any voids between crates, and the large apron allows crowding crates against an end-wall or previously stowed or stacked crated heaters. It is this compact loading that is so favorable to floating load shipping, the method we use when shipping crated heaters in carload lots.

"Two men with lift trucks can stow, and double-deck where needed, 1600 crated water heaters in 10 boxcars in 7½ hours, ready for strapping and closing the cars — irrespective of whether the crated heaters were taken from storage, off the crating line, or both," concluded the speaker.

Choosing the right size pallet

In his "short course" talk on "A Pallet Program for Older Buildings," Henry T. French, supervisor of packing design, The Electric Storage Battery Co., Philadelphia, stressed the need of one standard size pallet.

"It is best to plan a pallet program," said French, "around one standard size of pallet. . . . The size most generally used in industry, and adopted as standard by the Armed Forces, is 40" x 48". An important basis for adopting this size is the fact that it fits readily into both highway trucks and rail cars. Two across the 40" dimension can be placed in a truck, and two across the 48" dimension fits well into the standard box car. To be used for both, of course, the pallet must have four-way entry so that it can be picked up and set down from any side. This size can also be fitted into most storage

"All manufacturing, engineering and quality efforts are in vain if the product reaches its destination in a damaged condition."

PRODUCT PROTECTION IS OUR BUSINESS!

Signode manufactures steel strapping, strapping tools and seals . . . but that isn't all! Signode also offers its customers, large or small, a complete system of product protection. This service begins in your shipping room with a qualified analysis of your packing and shipping practices, follows with recommendations for improvements in container design and car bracing methods, ends only when your product is delivered to your customer in the same fine condition it left your plant.

Back of this operation are the most extensive research facilities in the steel strapping industry . . . a packaging laboratory, a full-size outdoor railroad test track, a staff of engineers who spend all their time working with customers in the field —to mention only a few.

If you would like to find out what we've learned about shipping products like yours . . . better, faster, at less cost . . . write

SIGNODE
STEEL STRAPPING COMPANY
2639 North Western Avenue, Chicago 47, Illinois

THIS SEAL MEANS SIGNODE SECURITY IN SHIPPING

plans very well, and a good pattern for loading on the pallet can be worked out for most materials."

To facilitate materials handling in older buildings, French pointed to the need for proper height at loading and unloading docks. "Efficiency is often lost because the platforms of older buildings are higher or lower than the vehicle into which material is loaded or from which it is unloaded. Obviously, this lifting or lowering means additional unnecessary handling. This can be avoided by equalizing the height of the dock and the height of the car or truck. Various means will help accomplish this, such as proper bridge plates, elevating docks, or slanted driveways," stated French.

Safe Transit discussed

A presentation of the "Aims and Objectives" of the National Safe Transit Program was presented at one "short course" session by Edward Mackasek, secretary, the National Safe Transit Committee. Mr. Mackasek discussed Safe Transit achievements to date and also future plans of the Safe Transit Committee.

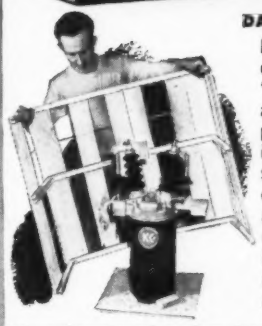
MORE SAFE TRANSIT CERTIFICATIONS

THE latest companies to be certified by the National Safe Transit Committee are: *Bendix Home Appliances, Inc.*, of South Bend, Indiana, and *Midwest Manufacturing Division, Admiral Corporation*, of Galesburg, Illinois. This brings to 59 the total number of companies now cooperating in the National Safe Transit Program.

SIGNODE APPOINTMENTS

M. C. Carlson, general sales manager, Signode Steel Strapping Co., has announced the promotions of J. F. Beckman as district manager of the New Orleans district, and John Hoffman as assistant manager of the Boston district. Beckman has been with Signode since 1925, while Hoffman has been a company sales representative since 1944.

TYPICAL USERS SAY THIS ABOUT *Wirebounds*

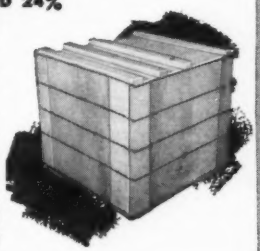


DAMAGE CLAIMS SLASHED

Porcelain breakage and oil leaks due to rough handling and "upside-down" loading plagued automatic circuit recloser company. User reported these findings: Wirebound Crate absorbed shocks, eliminated loading errors, drastically reduced damage claims; shipping room economies obtained through lower initial cost and faster assembly. Loads carried: 65 and 275 lbs.

EXPORT WEIGHT REDUCED 24%

By using specially designed Wirebounds with internal packing which permits a knocked-down dehumidifier to be shipped safely under export conditions, this overseas shipper reports considerable savings in both cubage and weight; old container weighed 150 lbs. packed, Wirebound weighs but 115 lbs. packed. Twisted wire closure also eliminates pilferage.



PACKING TIME CUT 55%

Medium-size company reports annual savings just short of five figures in packing and shipping costs since switching to Wirebounds for its line of gasoline-driven generators, pumps and blowers. One Wirebound fits all units. Assembly time was cut 40%, packing time 55%, tare weight from 80 to 45 lbs.

choose your course of action

Wirebound BOXES & CRATES

☐ Send me **general** information . . . complete descriptive book titled "What to Expect from Wirebounds."

☐ Send me **specific** information . . . tear sheets of case histories of packing products similar to mine.

☐ Give me **direct action** . . . send a sales engineer to show the advantages of Wirebound packing for my own product.

NAME POSITION

FIRM

STREET AND NUMBER

CITY ZONE STATE

OUR PRODUCT IS IT WEIGHS

mail now to

WIREBOUND BOX MANUFACTURERS ASSN.
Room 1154 • 327 S. LaSalle St.
Chicago 4, Illinois
Users names on request.

At speaker's table, left to right, are: J. J. Nance, president, Hotpoint; B. E. Schroeder, v.p.mfg.; C. D. Clawson, Ferro Enamel; A. H. Behnke, v.p. materials; George Tuttle, Benjamin Electric, vice president, Midwest Club; Ed Sharf, enamel specialist; Dana Chase, finish, Midwest council; H. A. Berry, mgr. gen. pur. div.

Midwest enamelers tour Hotpoint's new range plant

B. E. Schroeder, left, of Hotpoint, and Dr. A. I. Andrews, right, of U. of I., watch as Alvin Meyer, Benjamin Elec., admires his award.

At other end of speaker's table, right to left, are: F. A. Petersen, University of Illinois, president of Midwest Club; W. H. Hogenson, Chicago Vitreous; Patrick Ryan, mgr. mfg. div.; J. J. Svec, Ceramic Industry, sec.-treas., Midwest Club; Ted Shaw, mgr. wks. engr. div.; R. Porter, Carnegie-Illinois, Midwest council; Wm. Uhlir, mgr. insp. div.

APPROXIMATELY 150 members attended the Midwest Enamelers Club's first meeting of the season held at the new range plant of Hotpoint, Inc., Chicago, Friday, October 13. According to F. A. Petersen, Club president, this was the largest group ever to attend an opening meeting.

Following lunch at the plant as guests of James J. Nance, president of Hotpoint, the enamelers toured what is often termed "the world's largest electric range plant."

When the tour was over, the group met again at the plant's dining room where a drawing was held for a new range presented to the Club by Hotpoint. Dr. A. I. Andrews, head of the Department of Ceramic Engineering, University of Illinois, presided at the drawing. The lucky winner was Alvin Meyer, of Benjamin Electric Manufacturing Co.

Corrosion testing of chemical-resistant paints

(Continued from Page 26)

days, it probably would have withstood the effect of the same treatment in 2% acid for a much longer period. However, this assumption also should be tested before it is put into practice.

It will be observed that there is no definite relationship between the time of initial breakdown and the time of general breakdown. In a comparatively few cases they were identical. However, in a number of other cases the time to general breakdown was at least ten times as great as the time to initial breakdown. It is the feeling of the authors that the time to general breakdown should be used in evaluating a paint. The time to initial breakdown is much more likely to be erratic.

Conclusions

On the basis of the results of these experiments, which in many cases extended over more than three years, many conclusions may be drawn. Perhaps the most important are as follows:

1. Paints are available on the market which can be counted on to protect steel structures and other steel equipment under a wide variety of corrosive conditions of both the atmospheric and immersion types.

2. These paints should be tested before actual use in service to determine whether they are suitable for the particular set of conditions under considerations.

3. Laboratory corrosion tests frequently are useful for this purpose.

It is the authors' experience that, in laboratory corrosion tests, great care should be taken in:

1. The selection of the metal test samples.

2. The preliminary preparation of these samples.

3. The application of the paint.

4. The proper selection and maintenance of corrosive conditions.

5. The evaluation of the results.

The conditions of the test should duplicate as nearly as possible those to be used in actual service.

These rules were closely followed in the laboratory testing procedure which was developed at the Mines Branch and which was described in this article.

Authors' Note:

The authors are aware that laboratory corrosion testing has been subjected to a considerable amount of criticism due to the fact that the results obtained have not always duplicated those obtained under actual service conditions. The authors freely admit that testing of this kind has certain disadvantages. However, they believe that many of the difficulties which have been experienced could be traced to careless preparation of test samples, failure to accurately reproduce service conditions, or an inadequate method of evaluating the results. Long experience has taught that almost as much care and attention to details is required in corrosion testing as in quantitative chemical work.

In addition, some workers apparently have failed to realize that a certain type of metal equipment will corrode at different rates when used under different conditions; and that no single laboratory corrosion test of the metal can be expected to give a corrosion rate which will be useful when predicting the performance of the equipment under all of the different sets of conditions to be encountered in service.

1. "A Satisfactory Salt Spray Cabinet Design," Report of Mines Branch Investigation No. 2518, February 17, 1949.
2. "Corrosion Resistance of Painted Steel Samples when Subjected to Salt Spray or High Humidity in the Laboratory," Report of Mines Branch Investigation No. MD2611, November 29, 1949.

Adapted for finish *from a paper presented before the annual conference of The Chemical Institute of Canada.*

Drawing lubricants for deep drawing operations

(Continued from Page 28)

"semi-plastic compounds". These semi-plastic compounds are not true dry compounds. While water may be added to these materials, the compound applied to the blanks and the blanks dried, the resultant coating is tacky, and presents an even greater handling problem than wet compounds.

It may appear from the previous comments, that the application of dry drawing compounds requires a great amount of control. This is not the fact. It is like any other operation in industry. If the line of application is properly set up, a reasonable amount of care and attention is all that is required to have a highly successful operation.

Characteristics of dry drawing compounds

When dry drawing lubricants are applied, the coating is very thin. One pound of dry drawing lubricant will coat from 700 to 1000 square feet of metal, depending upon the concentration of the solution and upon the finish of the metal. The higher the concentration, the heavier the coating. The rougher the metal, the more coating it will pick up. Due to the even thin coating of dry drawing lubricant, the pressure on the die can be equalized.

As an indication of the high film strength of dry lubricants, it is pointed out that the required thickness of dry lubricants runs from .008 to .001". This high film strength contributes to the elimination of a major part of scratching and die wear. Also, the die picks up some of the dry drawing lubricant which eventually results in coating the die with a mirror-like finish. This also aids in the reduction of scrap occasioned by lack of lubrication. Small scratches which might occasionally occur on the die are eventually filled with dry drawing compound and will not appear on the drawn piece.

When dry lubricants are used, the even thickness and high film strength, coupled with a reduction of blank holding pressures, make it difficult to rupture the film in the course of the draw.

Press "down time" is reduced to minimum with this lubrication method, and longer periods of uninterrupted production may be maintained.

Cleanliness is readily achieved in the press room and this cleanliness also enables ease of inspection, as the parts are drawn. The cleanliness of the product also reduces cleaning

to Page 76 →

→ *from Page 75*

maintenance. The presses and the press room remain clean.

Pieces drawn with dry compounds may be welded without removing the dry compound from the parts. The composition of these compounds is such that they do not counteract ordinary flux or interfere with the weld.

The use of dry drawing compounds is of special advantage in the metal finishing industry. Only a mild alkaline cleaner is required to remove every trace of the dry drawing compound.

Frequently, where draws are quite deep and strains are set up in the metal and the piece must be annealed before being subject to further processing, the piece may be annealed without the removal of dry compounds. After annealing, a carbon smut will be present on the metal. This smut is not adherent and can be easily removed if desired. There are no detrimental effects on conveyors or belts on which the pieces are carried through the annealing furnace. Dry drawing compounds do not have the effect of a flux, on such belts or conveyors.

Dry drawing compounds are inert, with respect to the metal coated. Steel, iron, brass, and other types of metal are not affected by this material. In the aqueous state, there is a slight attack on magnesium and aluminum.

Dry lubricants produce no odor, even when annealed, and they are not toxic.

Adapted for *finish* from a paper before the PEI 12th annual forum for plant men.

Pocketbook economics

→ *from Page 34*

jects which are discussed. For instance, if you took this course it would be pointed out that when you were a youngster you probably ran a lemonade stand. Maybe you sold 10 or 20 glasses and were rich with the 10c or 20c you made. You might have made the sign advertising your lemonade and maybe you bought a lemon or two, but Mommy's kitchen supplied the bucket, the glasses, the sugar, the ice and everything else. Mommy subsidized you and paid the bill, the same as the taxpayer pays the bill for the potato subsidies.

Subsidies defined

Here is an understandable illustration which defines subsidies as the process of bribing people with their own money. If you bought your wife a dozen red roses, she would certainly be thrilled. If she later learned that you had bought the roses with money she had hidden away in the cookie jar, the thrill would be gone. Maybe you have experienced the same kind of letdown in reverse when you received a bill for the birthday present that thrilled you so much.

When discussing security and the value of personal incentive a comparison is made of the status of the American Indian with that of the American Negro. When the negroes were freed, they became responsible for their own livelihood and their future welfare. Now they are self-supporting. On the other hand, the American Indians were guaranteed security, and the majority of them have remained dependent upon Uncle Sam. Their incentive to provide for themselves has been destroyed, and many, many thousands of them are uneducated and undernourished. The Indian is reaping the unhappy result of living under bureaucratic control.

This program of ours goes into considerable detail to explain how the dwindling purchasing power of the dollar has affected the pocketbook. It is then clear why in 1940 you could buy an automobile or a bond for $750. Today that bond is worth $1000, but will it buy an automobile? No, you have to add $600 or $700 to it to buy the same automobile.

Enlighten by training

Another means of enlightening our people is our management training program. By management I do not mean just the officers and top executives, but every person who has men working for him. A group of 8 to 10 foremen at a time consisting of one or two men from several different plants and the mines visit our company's headquarters. These men are fully occupied for an entire week reviewing the company's policies, objectives and their own responsibilites. This group also meets with each top officer in his own office and spends from one to three hours with him talking about the affairs of the company. No subject is barred. The discussions are frank and on a man-to-man basis. At the end of the week these men really know their company, its objectives and its policies. The top officers know what kind of men represent them in the plants. These foremen know their officers and learn that the company's top brass are just human beings, too.

Unexpected benefits

There are some unexpected benefits coming out of this course we didn't foresee. First, we find the men are tremendously interested in how government policies affect the company's business and their jobs. They are just as much concerned about the costly effect of taxes, welfare and subsidy programs as any member of our Board of Directors. Next, they want to know what they can do about it. They almost unanimously agree the pocketbook approach will ring the bell.

You might ask, doesn't this take a lot of the top executives' time? It certainly does, but how can we spend our time to better advantage? If we are good managers, the more our organizations reflect our own experience and knowledge of the business and what affects it, the better we shall be doing our job. Again, the more men know about economic problems, the better judgment they will use in helping to shape our national economic affairs.

We need to speak up and oppose programs, both governmental and non-governmental, that our pocketbooks cannot afford. Our pocketbooks are being bled beyond what we can stand. History records that in the early days of medicine the doctors had a standard treatment, no matter what the disease. That treatment was to bleed the patient. As a result he became weaker and weaker. Just recently I read about the fatal illness of our first President, George Washington. The article said at the time of

to Page 78 →

Only TITANOX-TG

affords the purity

Essential **to controlled formulation of** TITANIA **frits**

Titanium dioxide can be the fundamental basis for frit formulation if you use TITANOX-TG. You can build your enamel around this pure and uniform ingredient because it provides the maximum yield of titanium dioxide without the impurities that adversely affect color uniformity.

These advantages prove why TITANOX-TG is your logical starting point for *controlled formulation* of modern titania frits. As always, our Technical Service Department stand ready to help you solve your individual problems.

Titanium Pigment Corporation, 111 Broadway, New York 6, N. Y.;
104 South Michigan Avenue, Chicago 3, Ill.;
2600 South Eastern Avenue, Los Angeles 22, Calif.
Branches in all other principal cities.

®**TITANOX**

the brightest name in ceramics

TITANIUM PIGMENT CORPORATION

Subsidiary of NATIONAL LEAD COMPANY

ADVERTISERS' INDEX

	PAGE
ABBE, INC., PAUL O.	37
ACME ALUMINUM FOUNDRY CO.	7
ARMCO STEEL CORPORATION	1
BIGELOW-GARVEY LUMBER CO.	71
CARNEGIE-ILLINOIS STEEL CORPORATION	14
CENTURY VITREOUS ENAMEL COMPANY	4
CERAMIC COLOR & CHEMICAL MFG. CO.	2nd COVER
CHICAGO MILL AND LUMBER COMPANY	64
CLASSIFIED ADVERTISING	78
COWLES CHEMICAL COMPANY	35
DEVILBISS COMPANY, THE	11
DETROIT BRASS & MALLEABLE WORKS	38
FAHRALLOY COMPANY, THE	56
FERRO ENAMEL CORPORATION	54 & 55, 4th COVER
FRANTZ COMPANY, INC., S. G.	58
GENERAL BOX COMPANY	66
HARSHAW CHEMICAL COMPANY, THE	2
HOMMEL COMPANY, THE O.	43
INGRAM-RICHARDSON MFG. CO. OF INDIANA, INC.	9
INLAND STEEL COMPANY	18
INTERNATIONAL NICKEL COMPANY, INC., THE	8
MACCO PRODUCTS COMPANY	79
McDANEL REFRACTORY PORCELAIN CO.	15
METAL & THERMIT CORPORATION	6
MILLS ENGINEERING COMPANY	45
NEW MONARCH MACHINE & STAMPING CO.	10
NORTHWEST CHEMICAL CO.	46
OREFRACTION, INC.	59
OWENS-CORNING FIBERGLAS CORPORATION	61
PEMCO CORPORATION	12 & 13
PENNSYLVANIA SALT MFG. CO.	3rd COVER
PUNDERSON COMPANY, V. B.	56
RATHBORNE, HAIR & RIDGWAY BOX CO.	70
ROBERTSHAW-FULTON CONTROLS COMPANY	60
SHERWIN-WILLIAMS CO., THE	51
SIGNODE STEEL STRAPPING COMPANY	72
SIMPSON ELECTRIC COMPANY	80
SUPERIOR SHEET STEEL DIVISION	4
TINNERMAN PRODUCTS, INC.	16
TITANIUM ALLOY MFG. DIV., NATIONAL LEAD CO.	17
TITANIUM PIGMENT CORPORATION	77
UNITED STATES STEEL CORPORATION	14
VITREOUS STEEL PRODUCTS CO.	53
WEBB COMPANY, JERVIS B.	57
WIREBOUND BOX MANUFACTURERS ASSN.	73

"I saw your ad in finish"

CLASSIFIED ADVERTISING

IMMEDIATE DELIVERY

On following enamel plant equipment in excellent condition, for sale as surplus: 5′ x 12′ Box Furnace, Sly Sand Blast Room; Binks Spray Line Conveyor. All Complete.

Address reply to Box 1150, c/o *finish*, 360 N. Michigan Ave., Chicago 1, Ill.

→ *from Page 76*

treatment he was receiving was mohis death, December 14, 1799, the lasses, butter and vinegar and "much bleeding."

We are applying a similar treatment today. When certain groups want something, or when our economic system misses a beat, our legislative doctors gather round and prescribe bleeding a few more billions in taxes. The patient—you and I—will get weaker and weaker—personal incentive will be smothered and our liberty will be curtailed.

Risk capital needed

Instead of bleeding us, modern doctors now give us blood transfusions. That is what the country needs—and it is needed in the form of risk capital flowing through our business arteries—by less government spending—by government encouraging men to provide for their security and opportunity through their own thrift and effort. Then we shall insure increased production at less cost—preserve our pocketbooks and make security secure.

Now, we ourselves need to create understanding not only by what we say, but by what we do. Business has been critical of government for advocating welfare programs of one kind or another. When recommendations are proposed with the sole purpose in mind of winning votes, or regardless of whether or not they are good for the country, we should be critical

to Page 80→

Talk about CLEAN...

Increases output...decreases rejects even on extremely difficult draws-- without the usual splashing, dripping, and objectionable mess around the press

In addition, Macco Dri Draw offers other important advantages. It can be applied by inexpensive labor, cutting costs. Application can be made at one central point, eliminating the necessity for using hand labor at the various presses on the floor. Large size steel sheets can be coated and sheared to size later, saving handling. Blanks can be coated far in advance and then stored until they are to be drawn. Macco Dri Draw leaves a rust-proof coating which protects the metal from corrosion prior to cleaning. Also, it is soluble in water, and therefore easily removed in any cleaning bath. Macco engineers will be glad to show you what Macco Dri Draw can do for YOU in YOUR plant. No obligation, of course. Write or phone.

MACCO
PRODUCTS COMPANY
CHEMICAL COMPOUNDS

FOR THE METAL WORKING TRADE--SINCE 1931

525 W. 76th STREET ★ CHICAGO 20, ILL.

→ *from Page 78*

and really go to bat against them. At the same time we should look and see if there is a mote in our own eyes. If we do, we shall see that a finger should sometimes be pointed at business, too.

While many welfare and subsidy programs are sponsored by our government, business, farmers, labor unions, religious groups, war veterans, educators, towns and cities also turn on the heat in Washington or in our state capitols with benefits to themselves in mind. Each is interested in its own cause and often ignores the good of the country.

Everyday we hear of requests for government aid for airports, sewage disposal plants, housing, flood control and other projects purely local in character. All the people of the United States will pay for them, but they should be paid for by those who receive the benefits. Is it right, to run to Washington every time we want money to do something in our own backyard? If so, we made a mistake in the Miami Valley.

Pay own way

For many years the valley in which my home is situated was ravaged by damaging floods. After the tragic flood of 1913, the Miami Valley Conservancy Project was organized, and millions of dollars were spent to eliminate this flood hazard. It was paid for in taxes by those property owners only whose property was benefited by flood protection. This was as it should have been.

However, it unfortunately seems that paying your own bill is out of date. Today we are accustomed to going to Washington to get money for strictly local projects. Businessmen who are staunch believers in free enterprise often head the delegations.

Let's go to work

Let's go to work on this important job of getting all of our own associates in our own companies to think straight and see beyond the immediate economic horizon. To help us I wish we could be bitten by the same urge which moves that wonderfully effective organization, Alcoholics Anonymous. Its members speak up and use themselves as examples to help men who are on the wrong path to think straight. They will sit up all night, explaining and reasoning, in an effort to save a man from himself.

Today our country is on a spending spree, and we shall all end up in the gutter if we don't watch out. What do you say about our taking a cue from Alcoholics Anonymous' great work and then tackle the job to help men think straight on economics? If we go about it with the same zeal and spirit they do, our efforts will become contagious and spread throughout the land. We then might be justified in calling ourselves "Economics Anonymous." I'd like to be a charter member. Will you join me?

Adapted for *finish* from an address by Mr. Sebald before the American Institute of Mining and Metallurgical Engineers, Cincinnati, Ohio.

FOR ACCURATE
DEPENDABLE
ELECTRICAL
MEASUREMENTS
Specify
Simpson
You can be sure your designs will work out well in production when you depend on "Simpson accuracy and dependability." For behind every Simpson instrument—whether panel or portable, custom-built or stock—is a world-wide reputation for quality. Let Simpson engineers help you solve your instrument problems — and for your standard instrument requirements take advantage of our large stock.
Mail coupon below for your FREE Simpson Catalog
Simpson
SIMPSON ELECTRIC COMPANY
5200 W. Kinzie, Chicago 44 • CO 1-1221
Please send me Simpson Catalog No. 16 showing complete line of Simpson Electrical Instruments and Test Equipment
Name
Company
Address
Dept. H

WANTED

Back Issues of FINISH

We need copies of the following back issues of FINISH, and will pay cash for available copies —

1947 — January and February
1948 — March
1949 — January and February
1950 — March

If you have copies of one or more of these issues please write to FINISH stating issues and number available.

DANA CHASE PUBLICATIONS
360 N. Michigan Ave. Chicago 1, Illinois